EL620-C

System Board
User's Manual

A17000050

Copyright

This publication contains information that is protected by copyright. No part of it may be reproduced in any form or by any means or used to make any transformation/adaptation without the prior written permission from the copyright holders.

This publication is provided for informational purposes only. The manufacturer makes no representations or warranties with respect to the contents or use of this manual and specifically disclaims any express or implied warranties of merchantability or fitness for any particular purpose. The user will assume the entire risk of the use or the results of the use of this document. Further, the manufacturer reserves the right to revise this publication and make changes to its contents at any time, without obligation to notify any person or entity of such revisions or changes.

© 2011. All Rights Reserved.

Trademarks

All trademarks and registered trademarks of products appearing in this manual are the properties of their respective holders.

FCC and DOC Statement on Class B

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio TV technician for help.

Notice:

1. The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
2. Shielded interface cables must be used in order to comply with the emission limits.

Table of Contents

Copyright 2

Trademarks 2

FCC and DOC Statement on Class B 3

About this Manual 6

Warranty 6

Static Electricity Precautions 7

Safety Measures 7

About the Package 8

Before Using the System Board 8

Chapter 1 - Introduction 9

- Specifications 9
- Features 11

Chapter 2 - Hardware Installation 13

- System Board Layout 13
- System Memory 14
  - Installing the DIM Module 16
- CPU 18
  - Installing the CPU 18
  - Installing the Fan and Heat Sink 22
- Jumper Settings 24
  - Clear CMOS Data 24
  - PS/2 Power Select 25
  - USB Power Select 26
  - COM1 COM2 RS232/RS422/RS485 Select 27
  - COM1 COM2 RS232/Power Select 28
  - Power-on Select 29
- Rear Panel I/O Ports 30
  - PS/2 Mouse and PS/2 Keyboard Ports 31
  - COM (Serial) Ports 32
  - VGA Port 34
  - DVI-I Port 35
  - RJ45 LAN Ports 36
  - USB Ports 37
  - Audio 39

I/O Connectors 40
CD-in Internal Audio Connector 40
S/PDIF Connector 41
Digital I/O Connector 42
SATA (Serial ATA) Connectors 43
IDE Connector 44
Parallel Connector 46
Cooling Fan Connectors 47
Chassis Instrusion Connector 48
Power Connectors 49
Standby Power LED 50
Front Panel Connectors 51
Expansion Slots 52
Battery 53

Chapter 3 - BIOS Setup 54

Overview 54
AMI BIOS Setup Utility 56
Main 56
Advanced 57
PCIPnP 72
Boot 73
Security 78
Chipset 81
Exit 85
Updating the BIOS 88

Chapter 4 - Supported Software 89

Appendix A - Watchdog Timer 112

Appendix B - System Error Message 114

Appendix C - Truobleshooting 116

About this Manual

An electronic file of this manual is included in the CD. To view the user's manual in the CD, insert the CD into a CD-ROM drive. The autorun screen (Main Board Utility CD) will appear. Click "User's Manual" on the main menu.

Warranty

1. Warranty does not cover damages or failures that arised from misuse of the product, inability to use the product, unauthorized replacement or alteration of components and product specifications.

2. The warranty is void if the product has been subjected to physical abuse, improper installation, modification, accidents or unauthorized repair of the product.

3. Unless otherwise instructed in this user's manual, the user may not, under any circumstances, attempt to perform service, adjustments or repairs on the product, whether in or out of warranty. It must be returned to the purchase point, factory or authorized service agency for all such work.

4. We will not be liable for any indirect, special, incidental or consequencial damages to the product that has been modified or altered.

Static Electricity Precautions

It is quite easy to inadvertently damage your PC, system board, components or devices even before installing them in your system unit. Static electrical discharge can damage computer components without causing any signs of physical damage. You must take extra care in handling them to ensure against electrostatic build-up.

1. To prevent electrostatic build-up, leave the system board in its anti-static bag until you are ready to install it.

2. Wear an antistatic wrist strap.

3. Do all preparation work on a static-free surface.

4. Hold the device only by its edges. Be careful not to touch any of the components, contacts or connections.

5. Avoid touching the pins or contacts on all modules and connectors. Hold modules or connectors by their ends.

Important:
Electrostatic discharge (ESD) can damage your processor, disk drive and other components. Perform the upgrade instruction procedures described at an ESD workstation only. If such a station is not available, you can provide some ESD protection by wearing an antistatic wrist strap and attaching it to a metal part of the system chassis. If a wrist strap is unavailable, establish and maintain contact with the system chassis throughout any procedures requiring ESD protection.

Safety Measures

To avoid damage to the system:
- Use the correct AC input voltage range.

To reduce the risk of electric shock:
- Unplug the power cord before removing the system chassis cover for installation or servicing. After installation or servicing, cover the system chassis before plugging the power cord.

Battery:
- Danger of explosion if battery incorrectly replaced.
- Replace only with the same or equivalent type recommend by the manufacturer.
- Dispose of used batteries according to local ordinance.

About the Package

The system board package contains the following items. If any of these items are missing or damaged, please contact your dealer or sales representative for assistance.

- ☑ One system board
- ☑ One USB cable
- ☑ One Serial ATA power cable
- ☑ Two Serial ATA data cables
- ☑ One bracket mounted with a COM port
- ☑ One I/O shield
- ☑ One Drivers/Utilities Disk
- ☑ One QR (Quick Reference)

The system board and accessories in the package may not come similar to the information listed above. This may differ in accordance to the sales region or models in which it was sold. For more information about the standard package in your region, please contact your dealer or sales representative.

Before Using the System Board

Before using the system board, prepare basic system components.

If you are installing the system board in a new system, you will need at least the following internal components.

- A CPU
- Memory module
- Storage devices such as hard disk drive, CD-ROM, etc.

You will also need external system peripherals you intend to use which will normally include at least a keyboard, a mouse and a video display monitor.

Chapter 1 - Introduction

Specifications

Processor	• LGA 775 socket for: - Intel® Core™2 Quad Q9400 - Intel® Core™2 Duo E8400/E7400/E6400/E4300 - Intel® Pentium® E6500/E5300/E2160 - Intel® Celeron® E3400/E1500/440 • Intel Enhanced Memory 64 Technology (EM64T) • Enhanced Intel SpeedStep Technology (EIST) • 1333/1066/800MHz FSB
Chipset	• Intel® chipset - Intel® G41 Express chipset - Intel® ICH7 I/O Controller Hub
System Memory	• Two 240-pin DDR3 DIMM sockets • Supports DDR3 800/1066MHz DIMM • Maximum memory bandwidth of 17GB/s in dual-channel mode when using DDR3 1066MHz • Supports dual channel memory interface • Supports up to 4GB system memory • Supports unbuffered x8 and x16 DIMMs
Expansion Slots	• 5 PCI slots (PCI 2.3) • 3 ISA slots Note: 1 PCI and 1 ISA are shared slots.
Graphics	• Integrated Intel GMA X4500 - 3D, 2D and video capabilities, DX10 and OpenGL 2.1 • Display ports: DVI-I (Chrontel CH7307C) and VGA
Audio	• Realtek ALC262 2-channel High Definition Audio • High performance DACs with 100dB SNR • ADCs with 90dB SNR • Two stereo DACs support 24-bit PCM format for stereo audio playback • Three stereo ADCs support 20-bit PCM format for multiple input streaming • S/PDIF audio interface
LAN	• 2 Realtek RTL8111DL PCI Express Gigabit Ethernet controllers • 10Mbps, 100Mbps and 1Gbps data transmission • IEEE 802.3u (10/100Mbps) and IEEE 802.3ab (1Gbps) compliant
Serial ATA Interface	• 4 Serial ATA ports compliant with SATA 1.0a specification • SATA speed up to 3Gb/s (SATA 2.0)
IDE	• Supports up to two IDE devices • Ultra ATA 100/66/33
Super I/O	• Winbond W83627DHG-P: supports 8-bit Digital I/O and printer port • Fintek F81217U: supports COM1 to COM4 • Fintek F81217U: supports COM5 to COM8

ISA Interface	• ITE IT8888G: PCI to ISA slot bridge - 3 ISA slots - Does not support ISA Master devices and ISA DMA devices
Rear Panel I/O Ports	• 1 mini-DIN-6 PS/2 mouse port • 1 mini-DIN-6 PS/2 keyboard port • 2 DB-9 serial ports - Supports RS232/422/485 - Pins 1 and 9 of RS232 functions as RS232 signal or power (selectable via jumper) • 1 DB-15 VGA port • 1 DVI-I port (DVI-D signal only) • 2 RJ45 LAN ports • 4 USB 2.0/1.1 ports • Mic-in, line-in and line out jacks
I/O Connectors	• 2 connectors for 4 external USB 2.0/1.1 ports • 6 connectors for 6 external RS232 serial ports • 1 8-bit Digital I/O connector • 1 front audio connector for line-out and mic-in jacks • 1 CD-in connector • 1 S/PDIF connector • 4 Serial ATA connectors • 1 40-pin IDE connector • 1 25-pin parallel connector • 1 24-pin ATX power connector • 1 4-pin 12V power connector • 1 chassis intrusion connector • 1 front panel connector • 3 fan connectors
BIOS	• AMI BIOS • 8Mbit SPI BIOS
Energy Efficient Design	• ACPI v3.0b specification • System Power Management • Wake-On-Events include: - Wake-On-PS/2 Keyboard/Mouse - Wake-On-USB Keyboard/Mouse - Wake-On-LAN • Microsoft®/Intel® APM 1.2 compliant • AC power failure recovery
Damage Free Intelligence	• Monitors CPU/System/NB temperature and overheat alarm • Monitors CPU/DIMM/NB/5V/12V/1.1V/VBAT voltages and failure alarm • Monitors CPU/System/2nd fan speed and failure alarm • Read back capability that displays temperature, voltage and fan speed • Watchdog timer function
Temperature	• 0°C to 60°C
Humidity	• 10% to 90%
PCB	• ATX form factor • 305mm (12”) x 244mm (9.6”)

Features

DDR3

DDR3 delivers increased system bandwidth and improved performance. It offers peak data transfer rate of up to 17 Gb/s bandwidth. The advantages of DDR3 are its higher bandwidth and its increase in performance at a lower power than DDR2.

Graphics

The Intel northbridge chip comes integrated with the Intel Graphics Media Accelerator X4500 delivering 3D, 2D and video capabilities. With support for Microsoft DirectX 10 and OpenGL 2.1, Intel GMA X4500 delivers excellent video and 3D graphics with outstanding graphics responsiveness. These enhancements deliver the performance and compatibility needed for today's and tomorrow's business applications.

Audio

The Realtek ALC262 audio codec provides 2-channel High Definition audio output.

Serial ATA

Serial ATA is a storage interface that is compliant with SATA 1.0a specification. With speed of up to 3Gbps, it improves hard drive performance faster than the standard parallel ATA whose data transfer rate is 100MB/s.

Gigabit LAN

The Realtek RTL8111DL PCI Express Ethernet Gigabit controller supports up to 1Gbps data transmission.

USB

The system board supports USB 2.0 and USB 1.1 ports. USB 1.1 supports 12Mb/second bandwidth while USB 2.0 supports 480Mb/second bandwidth providing a marked improvement in device transfer speeds between your computer and a wide range of simultaneously accessible external Plug and Play peripherals.

Wake-On-LAN

This feature allows the network to remotely wake up a Soft Power Down (Soft-Off) PC. It is supported via the onboard LAN port or via a PCI LAN card that uses the PCI PME (Power Management Event) signal. However, if your system is in the Suspend mode, you can power-on the system only through an IRQ or DMA interrupt.

Important:
The 5V_standby power source of your power supply must support ≥720mA.

Wake-On-USB

This function allows you to use a USB keyboard or USB mouse to wake up a system from the S3 (STR - Suspend To RAM) state.

Important:
If you are using the Wake-On-USB Keyboard/Mouse function for 2 USB ports, the 5V_standby power source of your power supply must support ≥1.5A. For 3 or more USB ports, the 5V_standby power source of your power supply must support ≥2A.

Wake-On-PS/2

This function allows you to use the PS/2 keyboard or PS/2 mouse to power-on the system.

Important:
The 5V_standby power source of your power supply must support ≥720mA.

ACPI STR

The system board is designed to meet the ACPI (Advanced Configuration and Power Interface) specification. ACPI has energy saving features that enables PCs to implement Power Management and Plug-and-Play with operating systems that support OS Direct Power Management. ACPI when enabled in the Power Management Setup will allow you to use the Suspend to RAM function.

With the Suspend to RAM function enabled, you can power-off the system at once by pressing the power button or selecting "Standby" when you shut down Windows® without having to go through the sometimes tiresome process of closing files, applications and operating system. This is because the system is capable of storing all programs and data files during the entire operating session into RAM (Random Access Memory) when it powers-off. The operating session will resume exactly where you left off the next time you power-on the system.

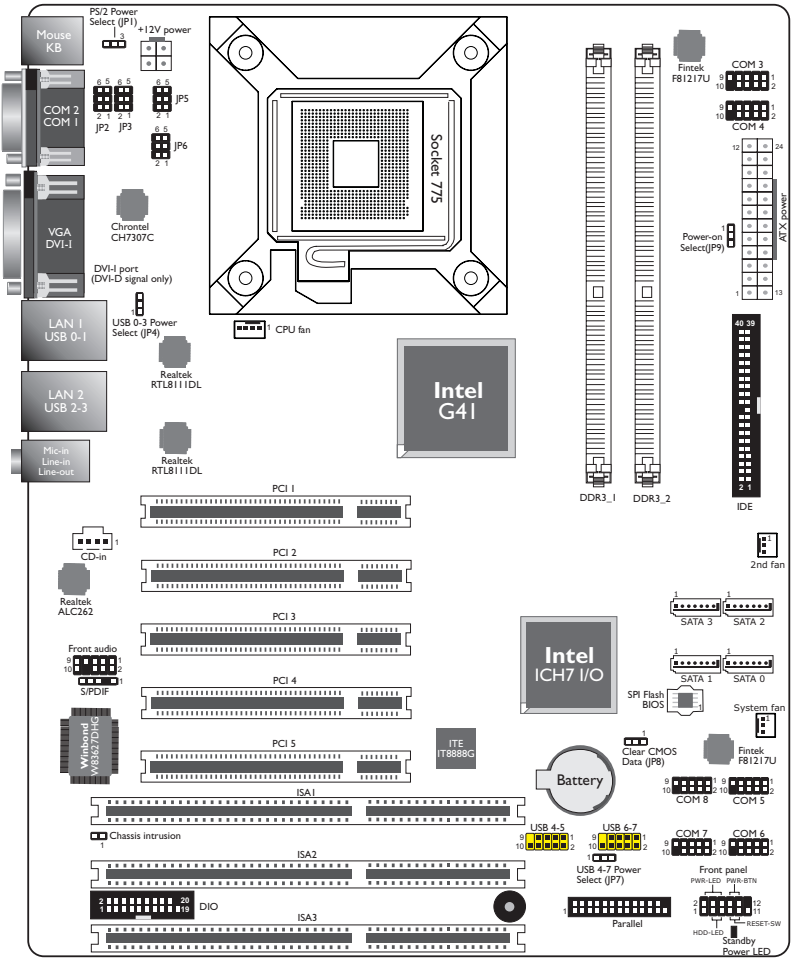
Important:
The 5V_standby power source of your power supply must support ≥720mA.

Power Failure Recovery

When power returns after an AC power failure, you may choose to either power-on the system manually or let the system power-on automatically.

Chapter 2 - Hardware Installation

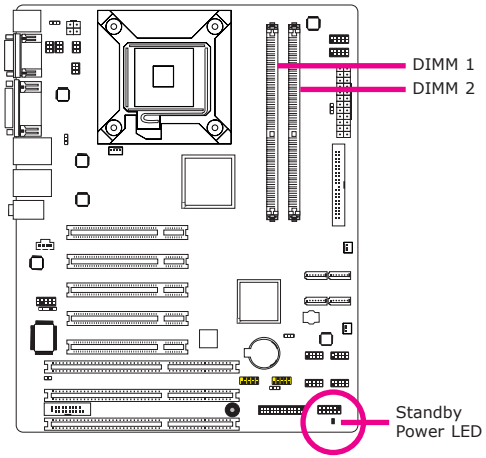
System Board Layout



Important:
Electrostatic discharge (ESD) can damage your system board, processor, disk drives, add-in boards, and other components. Perform the upgrade instruction procedures described at an ESD workstation only. If such a station is not available, you can provide some ESD protection by wearing an antistatic wrist strap and attaching it to a metal part of the system chassis. If a wrist strap is unavailable, establish and maintain contact with the system chassis throughout any procedures requiring ESD protection.

System Memory

Important:
When the Standby Power LED lit red, it indicates that there is power on the system board. Power-off the PC then unplug the power cord prior to installing any devices. Failure to do so will cause severe damage to the motherboard and components.



Features

- Two 240-pin DDR3 DIMM sockets
- Supports DDR3 800/1066MHz DIMM
- Supports dual channel memory interface
- Supports up to 4GB system memory

The system board supports the following memory interface.

Single Channel (SC)

Data will be accessed in chunks of 64 bits (8B) from the memory channels.

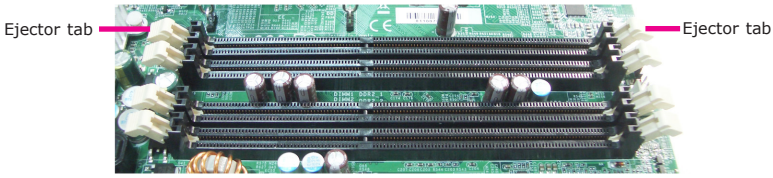
Dual Channel (DC)

Data will be accessed in chunks of 128 bits from the memory channels. Dual channel provides better system performance because it doubles the data transfer rate.

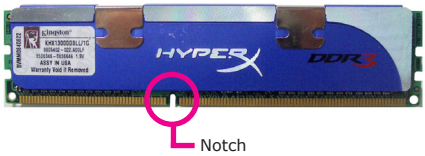
Installing the DIM Module

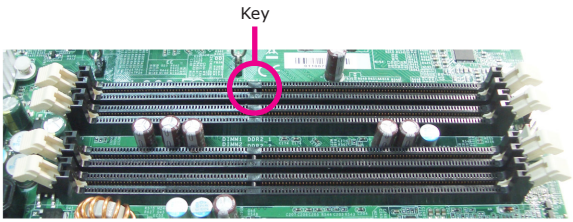
Note:
The system board used in the following illustrations may not resemble the actual board. These illustrations are for reference only.

1. Make sure the PC and all other peripheral devices connected to it has been powered down.
2. Disconnect all power cords and cables.
3. Locate the DIMM socket on the system board.
4. Push the "ejector tabs" which are at the ends of the socket to the side.

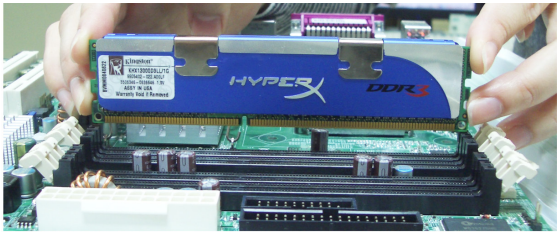


5. Note how the module is keyed to the socket.

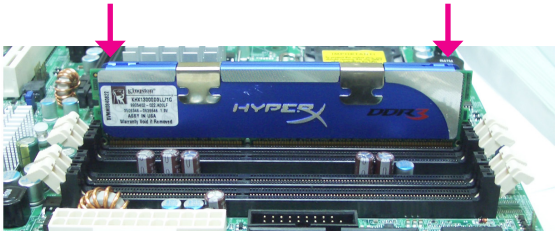




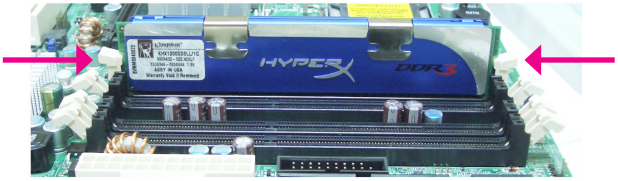
6. Grasping the module by its edges, position the module above the socket with the "notch" in the module aligned with the "key" on the socket. The keying mechanism ensures the module can be plugged into the socket in only one way.



7. Seat the module vertically, pressing it down firmly until it is completely seated in the socket.



8. The ejector tabs at the ends of the socket will automatically snap into the locked position to hold the module in place.



CPU

The system board is equipped with a surface mount LGA 775 socket. This socket is exclusively designed for installing a LGA 775 packaged Intel CPU.

Important:

1. Before you proceed, make sure (1) the LGA775 socket comes with a protective cap, (2) the cap is not damaged and (3) the socket's contact pins are not bent. If the cap is missing or the cap and/or contact pins are damaged, contact your dealer immediately.
2. Make sure to keep the protective cap. RMA requests will be accepted and processed only if the LGA775 socket comes with the protective cap.

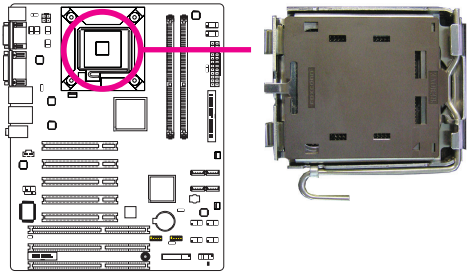
Installing the CPU

1. Make sure the PC and all other peripheral devices connected to it has been powered down.

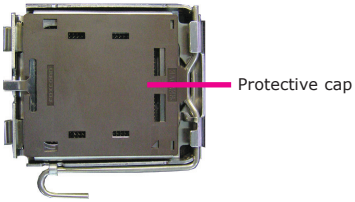
2. Disconnect all power cords and cables.

3. Locate the LGA 775 CPU socket on the system board.

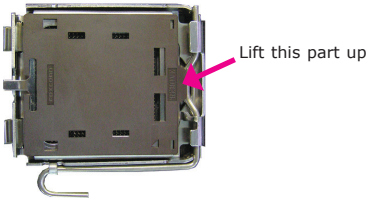
   Important:
   The CPU socket must not come in contact with anything other than the CPU. Avoid unnecessary exposure. Remove the protective cap only when you are about to install the CPU.



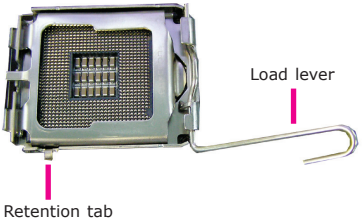
4. The CPU socket comes with a removable protective cap. The cap is used to protect the CPU socket against dust and harmful particles. Remove the protective cap only when you are about to install the CPU.



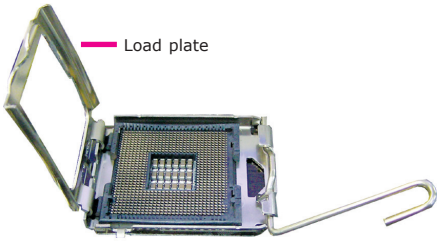
5. To remove the protective cap, lift the cap on the location pointed on the right photo.



6. Unlock the socket by pushing the load lever down, moving it sideways until it is released from the retention tab; then lift it up.

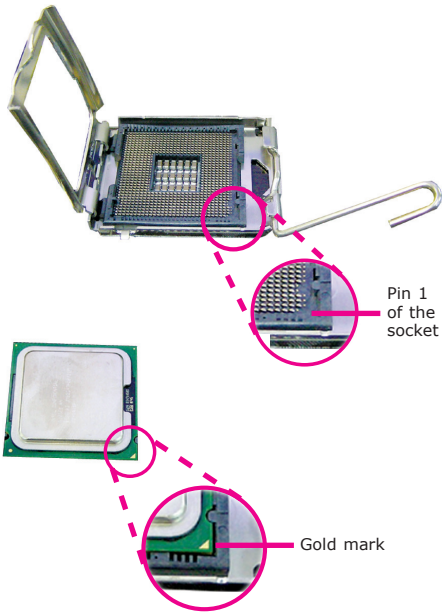


7. Life the load plate.



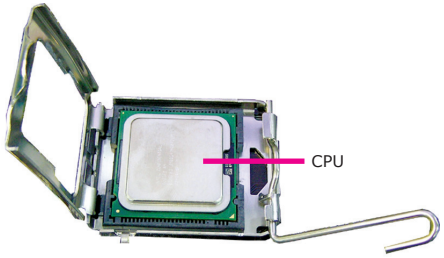
8. Position the CPU above the socket. The gold mark on the CPU must align with pin 1 of the CPU socket.

Important:
Handle the CPU by its edges and avoid touching the pins.

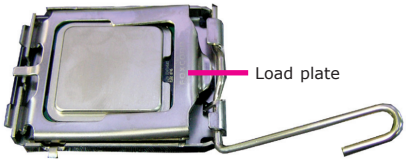


9. Insert the CPU into the socket until it is seated in place. The CPU will fit in only one orientation and can easily be inserted without exerting any force.

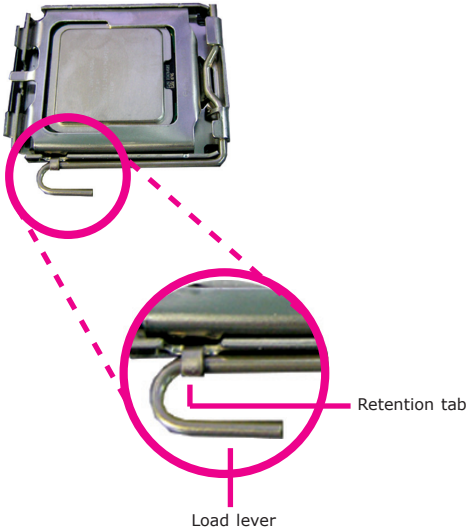
Important:
Do not force the CPU into the socket. Forcing the CPU into the socket may bend the pins and damage the CPU.



10. Close the load plate.



11. Push the load lever down to lock the socket. The lever should hook onto the retention tab to indicate that the CPU is completely secured in the socket.



Installing the Fan and Heat Sink

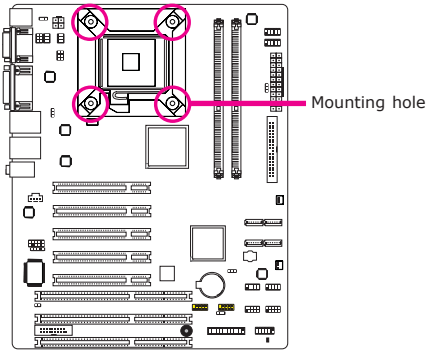
The CPU must be kept cool by using a CPU fan with heat sink. Without sufficient air circulation across the CPU and heat sink, the CPU will overheat damaging both the CPU and system board.

Note:
A boxed Intel® processor already includes the CPU fan and heat sink assembly. If your CPU was purchased separately, make sure to only use Intel®-certified fan and heat sink.

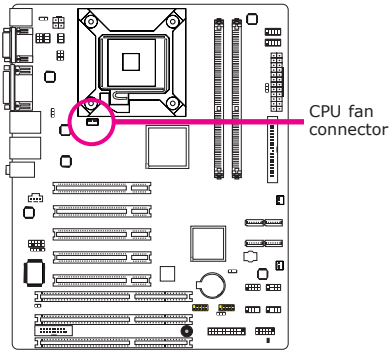
1. Before you install the fan / heat sink, you must apply a thermal paste onto the top of the CPU. The thermal paste is usually supplied when you purchase the fan / heat sink assembly. Do not spread the paste all over the surface. When you later place the heat sink on top of the CPU, the compound will disperse evenly.

   Some heat sinks come with a patch of pre-applied thermal paste. Do not apply thermal paste if the fan / heat sink already has a patch of thermal paste on its underside. Peel the strip that covers the paste before you place the fan / heat sink on top of the CPU.

2. Place the heat sink on top of the CPU. The 4 push-pins around the heat sink, which are used to secure the heat sink onto the system board, must match the 4 mounting holes around the socket.

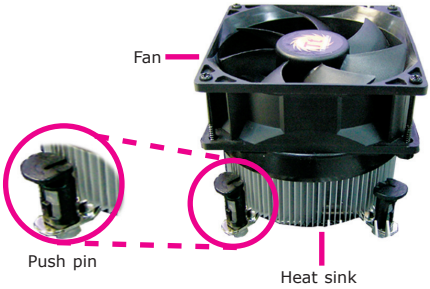


3. Orient the heat sink such that the CPU fan's cable is nearest the CPU fan connector.



4. Rotate each push-pin according to the direction of the arrow shown on top of the pin.

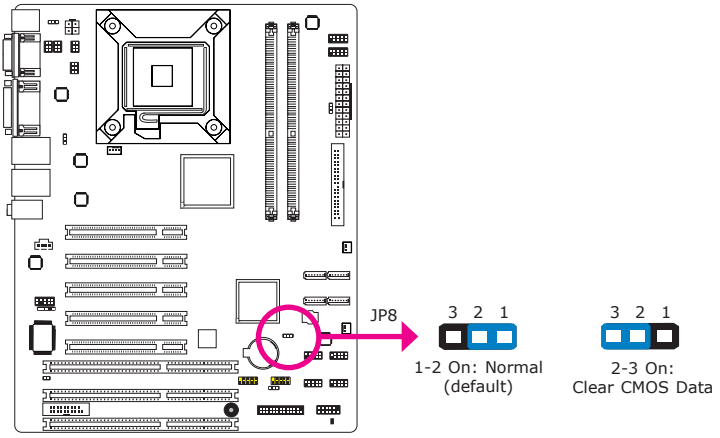
   Push down two pushpins that are diagonally across the heat sink. Perform the same procedure for the other two push-pins.



5. Connect the CPU fan's cable connector to the CPU fan connector on the system board.

Jumper Settings

Clear CMOS Data



If you encounter the following,

a) CMOS data becomes corrupted.
b) You forgot the supervisor or user password.

you can reconfigure the system with the default values stored in the ROM BIOS.

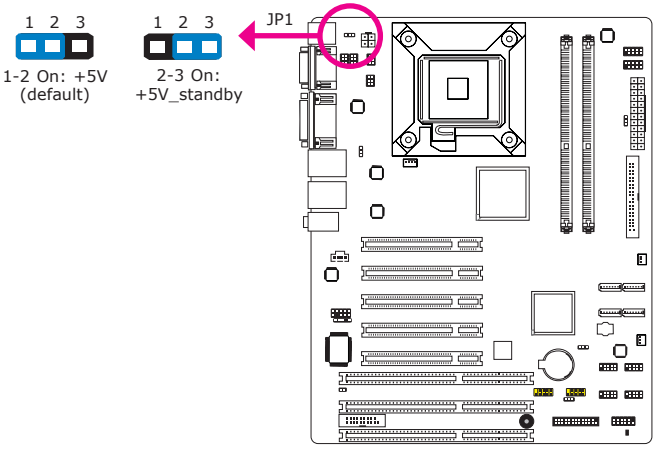
To load the default values stored in the ROM BIOS, please follow the steps below.

1. Power-off the system and unplug the power cord.

2. Set JP8 pins 2 and 3 to On. Wait for a few seconds and set JP8 back to its default setting, pins 1 and 2 On.

3. Now plug the power cord and power-on the system.

PS/2 Power Select



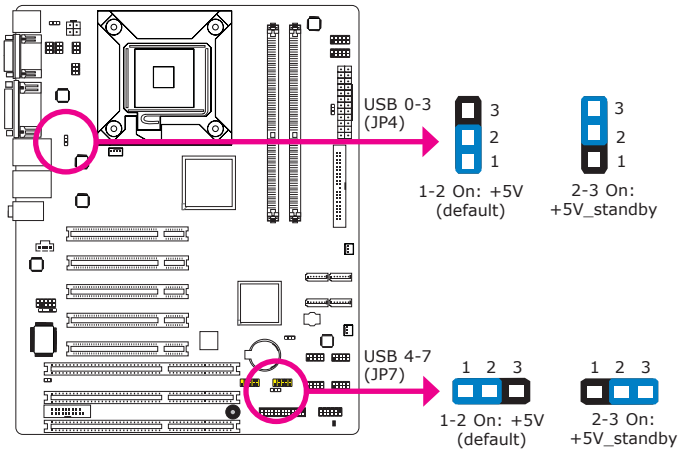
JP1 is used to select the power of the PS/2 keyboard/mouse port. Selecting +5V_standby will allow you to use the PS/2 keyboard or PS/2 mouse to wake up the system.

BIOS Setting

Configure the PS/2 keyboard/mouse wake up function in the Integrated Peripherals submenu ("Super IO Device" section) of the BIOS. Refer to chapter 3 for more information.

Important:
The +5VSB power source of your power supply must support ≥720mA.

USB Power Select



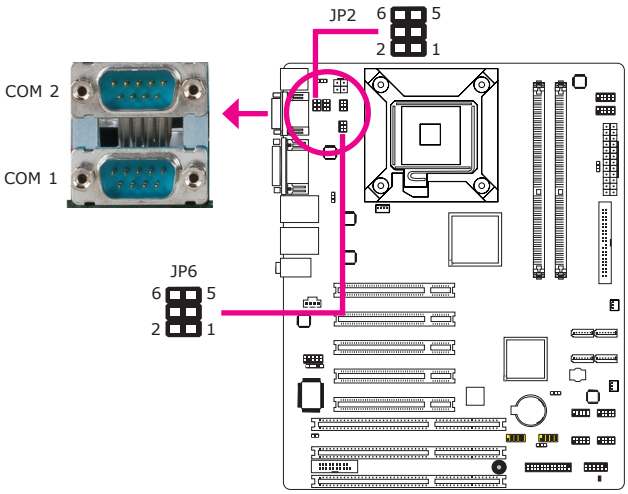
These jumpers are used to select the power of the USB ports. Selecting +5V_ standby will allow you to use a USB device to wake up the system.

BIOS Setting

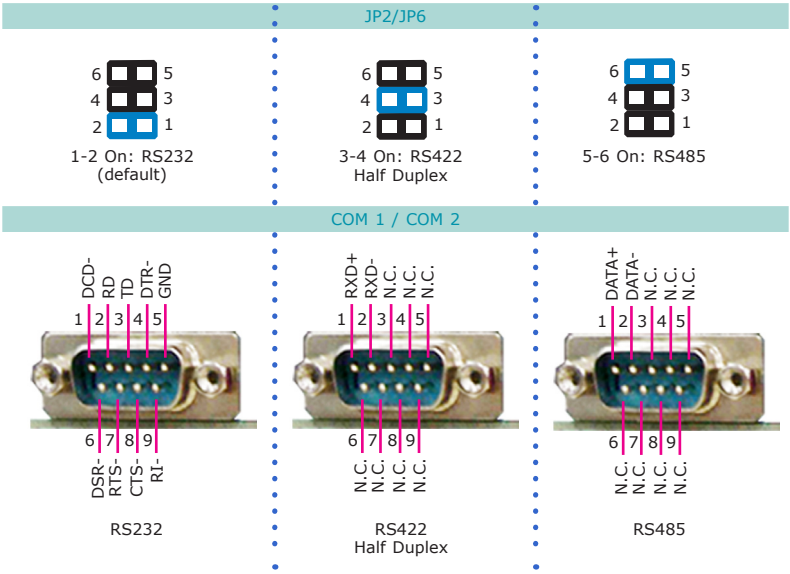
"USB KB Wake-Up From S3" in the Power Management Setup submenu of the BIOS must be set to Enabled. Refer to chapter 3 for more information.

Important:
If you are using the Wake-On-USB Keyboard/Mouse function for 2 USB ports, the +5V_standby power source of your power supply must support ≥1.5A. For 3 or more USB ports, the +5V_standby power source of your power supply must support ≥2A.

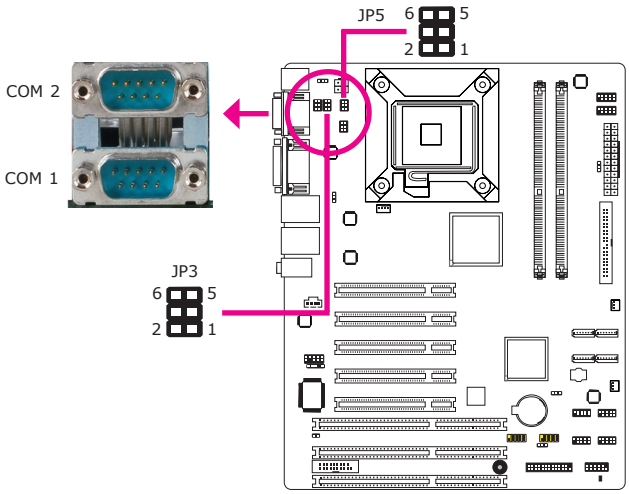
COM 1 COM 2 RS232/RS422/RS485 Select



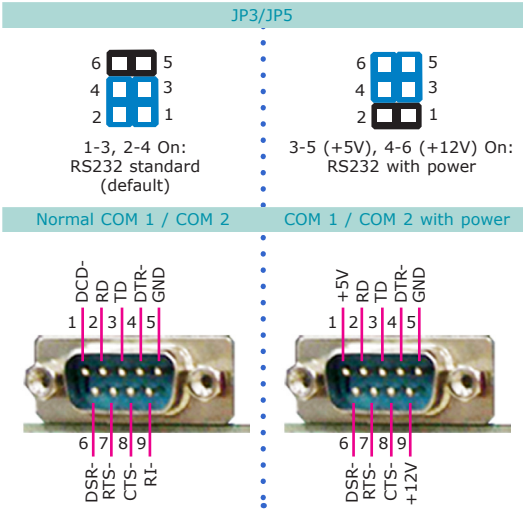
JP6 (for COM1) and JP2 (for COM2) are used to configure the COM ports to RS232, RS422 (Half Duplex) or RS485.



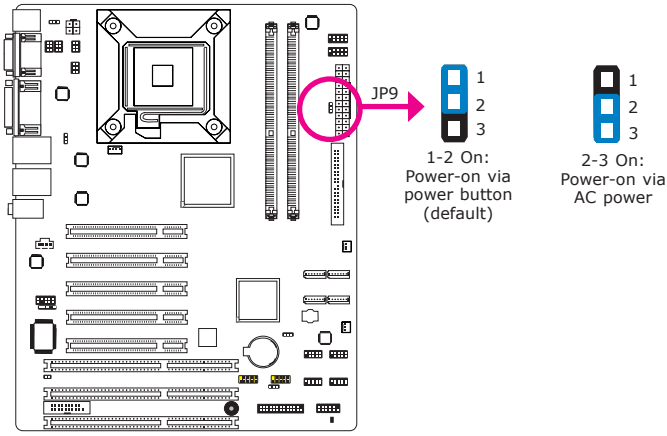
COM 1 COM 2 RS232/Power Select



JP5 (for COM1) and JP3 (for COM2) are used to configure the COM ports to RS232 or RS232 with power.



Power-on Select

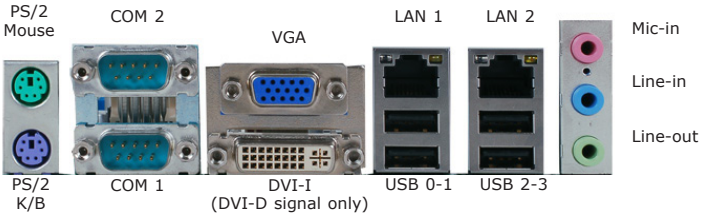


JP9 is used to select the method of powering on the system. If you want the system to power-on whenever AC power comes in, set JP9 pins 2 and 3 to On. If you want to use the power button, set pins 1 and 2 to On.

When using the JP9 "Power On" feature to power the system back on after a power failure occurs, the system may not power on if the power lost is resumed within 5 seconds (power flicker).

Note:
In order to ensure that power is resumed after a power failure that recovers within a 5 second period, JP9 must be set to pins 2-3 and the "PWRON After PWR-Fail" in CMOS is set to "On".

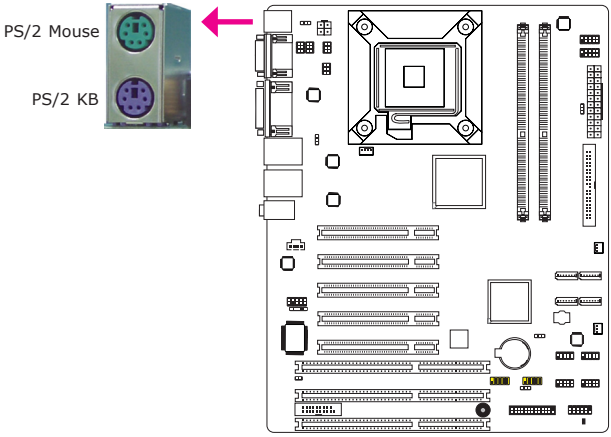
Rear Panel I/O Ports



The rear panel I/O ports consist of the following:

- PS/2 mouse port
- PS/2 keyboard port
- 2 COM ports
- VGA port
- DVI-I port (DVI-D signal only)
- 2 LAN ports
- 4 USB ports
- Mic-in jack
- Line-in jack
- Line-out jack

PS/2 Mouse and PS/2 Keyboard Ports



These ports are used to connect a PS/2 mouse and a PS/2 keyboard. The PS/2 mouse port uses IRQ12. If a mouse is not connected to this port, the system will reserve IRQ12 for other expansion cards.

Important:
Make sure to turn off your computer prior to connecting or disconnecting a mouse or keyboard. Failure to do so may damage the system board.

Wake-On-PS/2 Keyboard/Mouse

The Wake-On-PS/2 Keyboard/Mouse function allows you to use the PS/2 keyboard or PS/2 mouse to power-on the system. To use this function:

- Jumper Setting

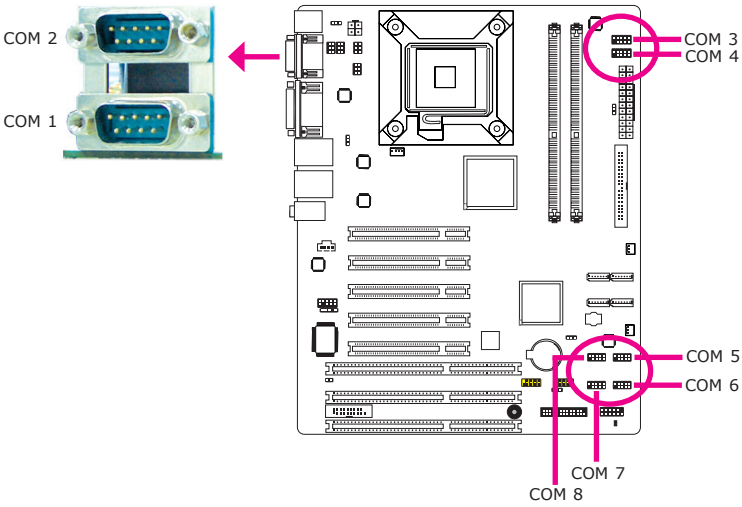
  JP1 must be set to "2-3 On: +5V_standby". Refer to "PS/2 Power Select" in this chapter for more information.

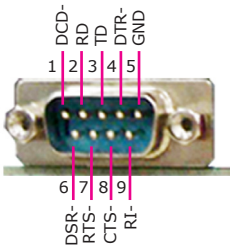
- BIOS Setting

  Configure the PS/2 keyboard/mouse wake up function in the Integrated Peripherals submenu ("Super IO Device" section) of the BIOS. Refer to chapter 3 for more information.

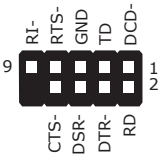
Important:
The +5V_standby power source of your power supply must support ≥720mA.

COM (Serial) Ports





COM 1 and COM 2



COM 3 to COM 8

COM 3 to COM 8 are fixed at RS232.

COM 1's and COM 2's pin definition will vary according to JP6's and JP2's settings respectively. Refer to "COM 1 (JP6), COM 2 (JP2) RS232/RS422/RS485 Select" in this chapter for more information.

The serial ports are asynchronous communication ports with 16C550A-compatible UARTs that can be used with modems, serial printers, remote display terminals, and other serial devices.

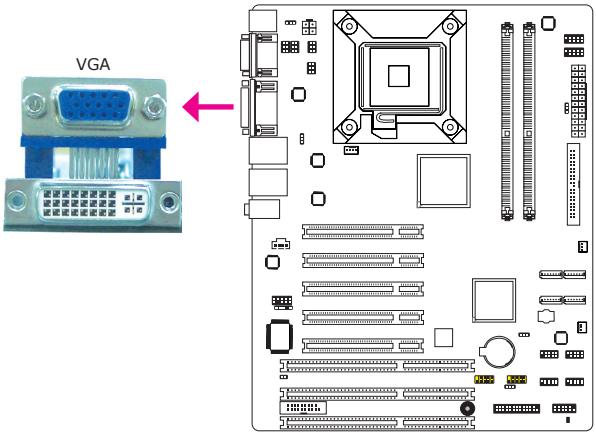
Connecting External Serial Ports

Your COM port may come mounted on a card-edge bracket. Install the card-edge bracket to an available slot at the rear of the system chassis then insert the serial port cable to a COM connector. Make sure the colored stripe on the ribbon cable is aligned with pin 1 of the COM connector.

BIOS Setting

Configure the serial ports in the Integrated Peripherals submenu ("Super IO Device" section) of the BIOS. Refer to chapter 3 for more information.

VGA Port



The VGA port is used for connecting a VGA monitor. Connect the monitor's 15-pin D-shell cable connector to the VGA port. After you plug the monitor's cable connector into the VGA port, gently tighten the cable screws to hold the connector in place.

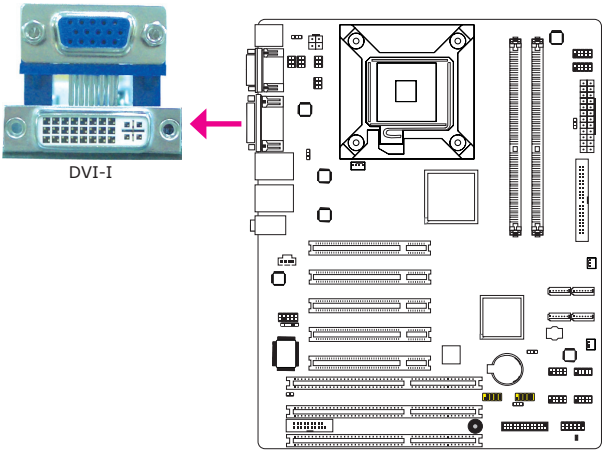
BIOS Setting

Configure the onboard VGA in the Advanced Chipset Features submenu of the BIOS. Refer to chapter 3 for more information.

Driver Installation

Install the graphics driver. Refer to chapter 4 for more information.

DVI-I Port



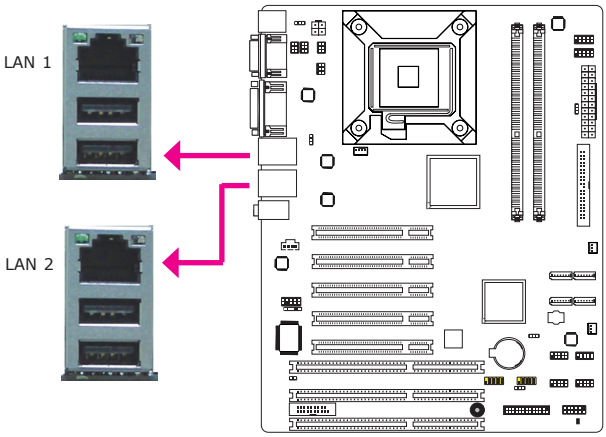
The DVI-I port is used to connect an LCD monitor. This port supports DVI-D signal only.

Connect the display device's cable connector to the DVI-I port. After you plug the cable connector into the port, gently tighten the cable screws to hold the connector in place.

BIOS Setting

Configure the display device in the Advanced Chipset Features submenu of the BIOS. Refer to chapter 3 for more information.

RJ45 LAN Ports



The LAN ports allow the system board to connect to a local area network by means of a network hub.

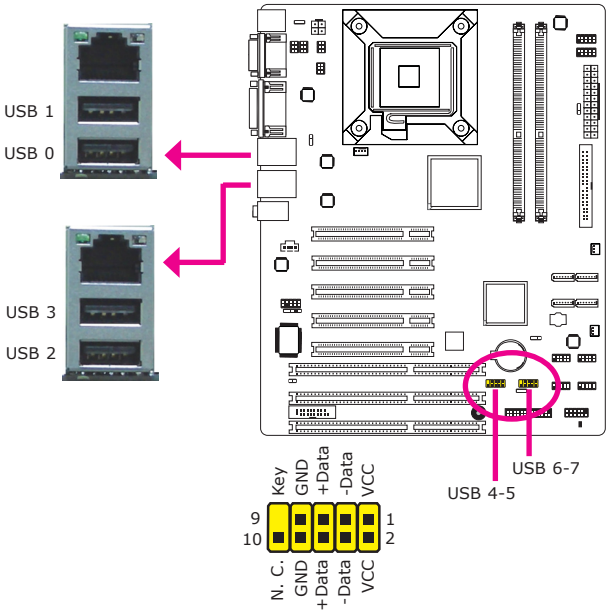
BIOS Setting

Configure the onboard LAN ports in the Integrated Peripherals submenu of the BIOS. Refer to chapter 3 for more information.

Driver Installation

Install the LAN drivers. Refer to chapter 4 for more information.

USB Ports



USB allows data exchange between your computer and a wide range of simultaneously accessible external Plug and Play peripherals.

The system board is equipped with two onboard USB 2.0/1.1 ports. The two 10-pin connectors allow you to connect 4 additional USB 2.0/1.1 ports. The additional USB ports may be mounted on a card-edge bracket. Install the card-edge bracket to an available slot at the rear of the system chassis then insert the USB port cables to a connector.

BIOS Setting

Configure the onboard USB in the Integrated Peripherals submenu ("USB Device Setting" section) of the BIOS. Refer to chapter 3 for more information.

Driver Installation

You may need to install the proper drivers in your operating system to use the USB device. Refer to your operating system's manual or documentation for more information.

Wake-On-USB Keyboard/Mouse

The Wake-On-USB Keyboard/Mouse function allows you to use a USB keyboard or USB mouse to wake up a system from the S3 (STR - Suspend To RAM) state. To use this function:

- Jumper Setting

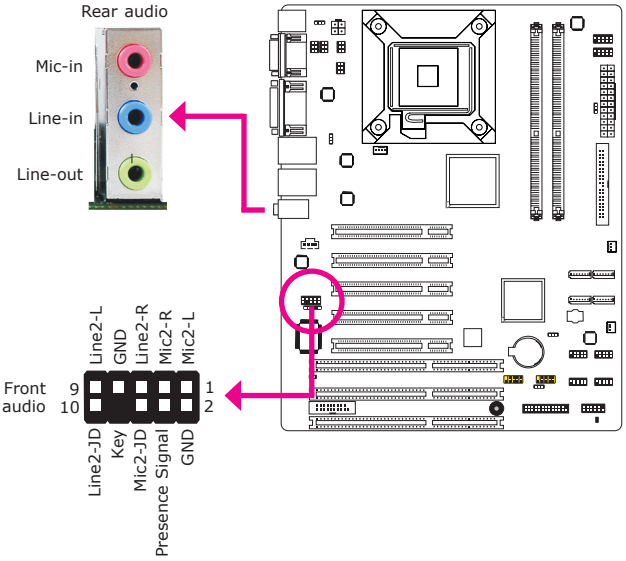
  JP4 and/or JP7 must be set to "2-3 On: +5V_standby". Refer to "USB Power Select" in this chapter for more information.

- BIOS Setting

  "USB KB Wake-Up From S3" in the Power Management Setup submenu of the BIOS must be set to Enabled. Refer to chapter 3 for more information.

Important:
If you are using the Wake-On-USB Keyboard/Mouse function for 2 USB ports, the +5V_standby power source of your power supply must support ≥1.5A. For 3 or more USB ports, the +5V_standby power source of your power supply must support ≥2A.

Audio



Rear Audio

The system board is equipped with 3 audio jacks. A jack is a one-hole connecting interface for inserting a plug.

- Mic-in Jack (Pink)
  This jack is used to connect an external microphone.
- Line-in Jack (Light Blue)
  This jack is used to connect any audio devices such as Hi-fi set, CD player, tape player, AM/FM radio tuner, synthesizer, etc.
- Line-out Jack (Lime)
  This jack is used to connect a headphone or external speakers.

Front Audio

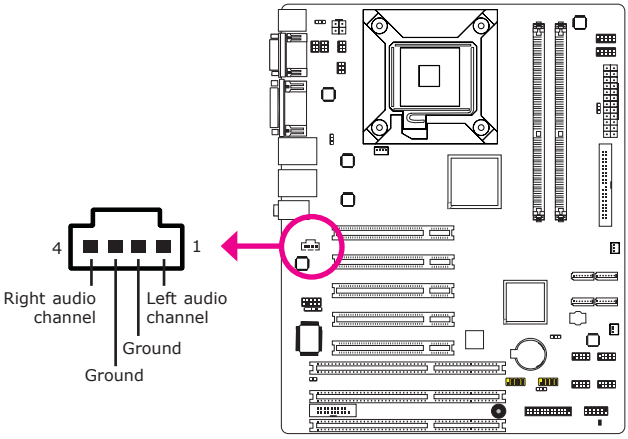
The front audio connector allows you to connect to the second line-out and mic-in jacks that are at the front panel of your system.

Driver Installation

Install the audio driver. Refer to chapter 4 for more information.

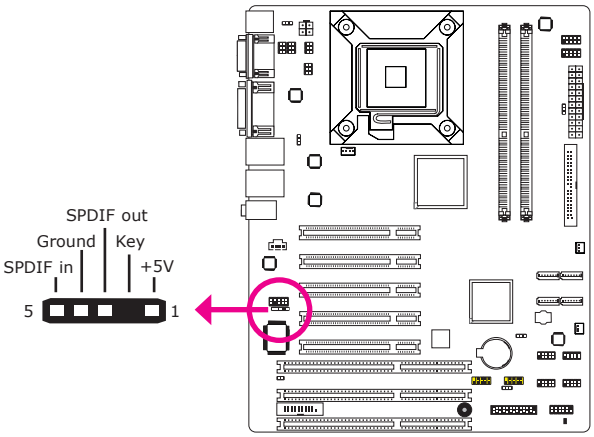
I/O Connectors

CD-in Internal Audio Connector



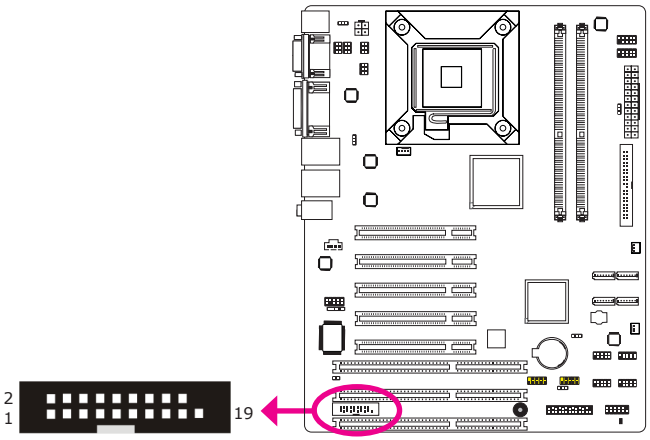
The CD-in connector is used to receive audio from a CD-ROM drive, TV tuner or MPEG card.

S/PDIF Connector



The S/PDIF connector is used to connect an external S/PDIF port. Your S/PDIF port may be mounted on a card-edge bracket. Install the card-edge bracket to an available slot at the rear of the system chassis then connect the audio cable to the S/PDIF connector. Make sure pin 1 of the audio cable is aligned with pin 1 of the S/PDIF connector.

Digital I/O Connector

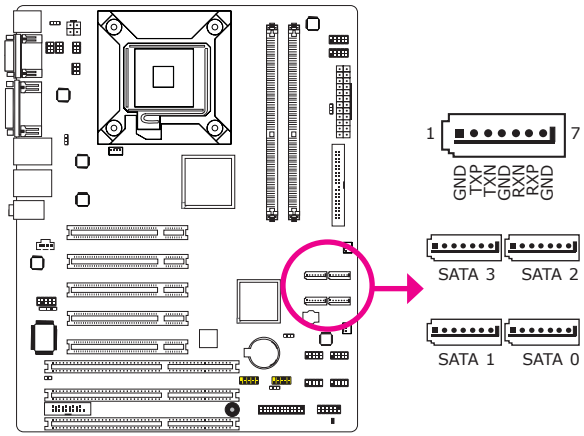


The Digital I/O connector provides powering-on function to an external device that is connected to this connector.

Digital I/O Connector

Pins	Function	Pins	Function
1	GND	2	+12V
3	DIO7	4	+12V
5	DIO6	6	GND
7	DIO5	8	VCC5
9	DIO4	10	VCC5
11	DIO3	12	GND
13	DIO2	14	V5DU
15	DIO1	16	V5DU
17	DIO0	18	GND
19	GND		

SATA (Serial ATA) Connectors

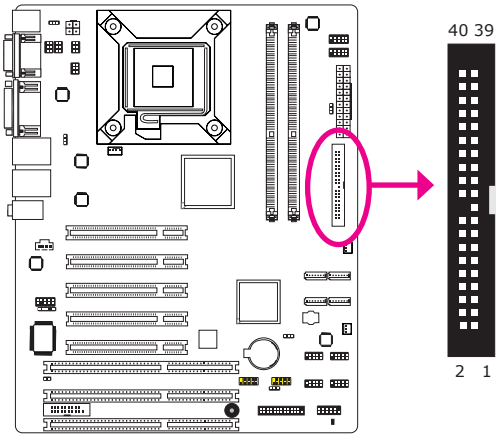


The Serial ATA connectors are used to connect Serial ATA devices. Connect one end of the Serial ATA cable to a SATA connector and the other end to your Serial ATA device.

BIOS Setting

Configure the Serial ATA drives in the Integrated Peripherals submenu ("OnChip IDE Device" section) of the BIOS. Refer to chapter 3 for more information.

IDE Connector



The IDE connector is used to connect hard drives. The connector on the IDE cable can be inserted into this connector only if pin 1 of the cable is aligned with pin 1 of this connector.

The IDE connector supports 2 devices, a Master and a Slave. Use an IDE ribbon cable to connect the drives to the system board. An IDE ribbon cable has 3 connectors on them, one that plugs into the IDE connector on the system board and the other 2 connects to IDE devices. The connector at the end of the cable is for the Master drive and the connector in the middle of the cable is for the Slave drive.

Note:
Refer to your disk drive user's manual for information about selecting proper drive switch settings.

Adding a Second IDE Disk Drive

When using two IDE drives, one must be set as the master and the other as the slave. Follow the instructions provided by the drive manufacturer for setting the jumpers and/or switches on the drives.

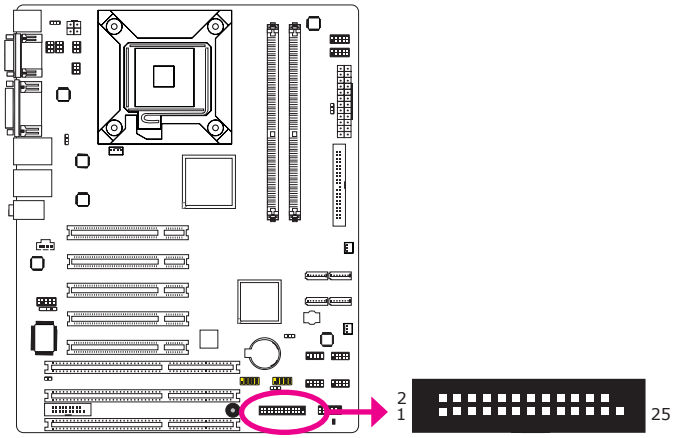
The system board supports Enhanced IDE or ATA-2, ATA/33, ATA/66, ATA/100 and ATA/133 hard drives. We recommend that you use hard drives from the same manufacturer. In a few cases, drives from two different manufacturers will not function properly when used together. The problem lies in the hard drives, not the system board.

Important:
If you encountered problems while using an ATAPI CD-ROM drive that is set in Master mode, please set the CD-ROM drive to Slave mode. Some ATAPI CD-ROMs may not be recognized and cannot be used if incorrectly set in Master mode.

BIOS Setting

Configure the onboard IDE in the Integrated Peripherals submenu ("OnChip IDE Device" section) of the BIOS. Refer to chapter 3 for more information.

Parallel Connector



The parallel port is for interfacing your PC to a parallel printer. It supports SPP, ECP and EPP.

SPP (Standard Parallel Port)	Allows normal speed operation but in one direction only.
ECP (Extended Capabilities Port)	Allows parallel port to operate in bidirectional mode and at a speed faster than the SPP's data transfer rate.
EPP (Enhanced Parallel Port)	Allows bidirectional parallel port operation at maximum speed.

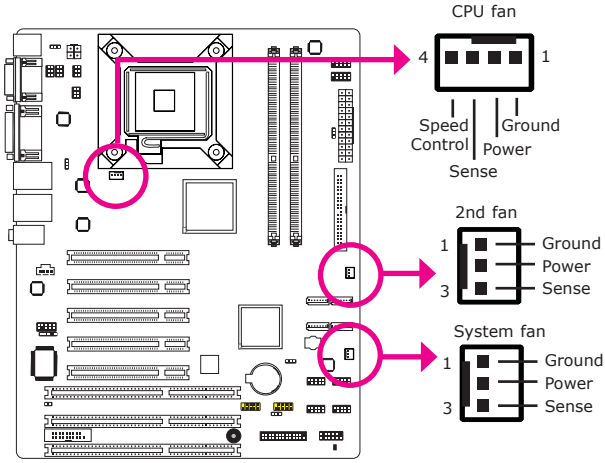
Connecting the Parallel Port Cable

Your parallel port may be mounted on a card-edge bracket. Install the card-edge bracket to an available slot at the rear of the system chassis then insert the cable to the parallel connector. Make sure the colored stripe on the ribbon cable is aligned with pin 1 of the connector.

BIOS Setting

Configure the onboard parallel in the Advanced menu of the BIOS. Refer to chapter 3 for more information.

Cooling Fan Connectors

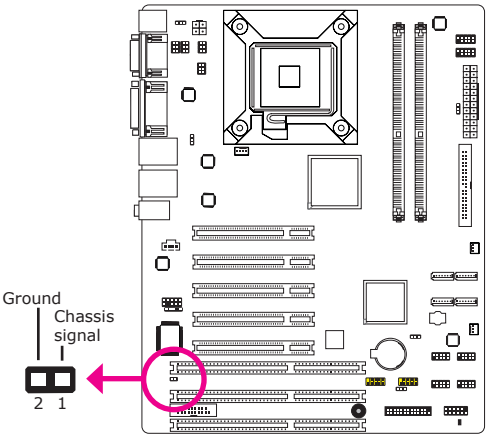


The fan connectors are used to connect cooling fans. The cooling fans will provide adequate airflow throughout the chassis to prevent overheating the CPU and system board components.

BIOS Setting

The PC Health Status submenu of the BIOS will display the current speed of the cooling fans. Refer to chapter 3 for more information.

Chassis Instrusion Connector

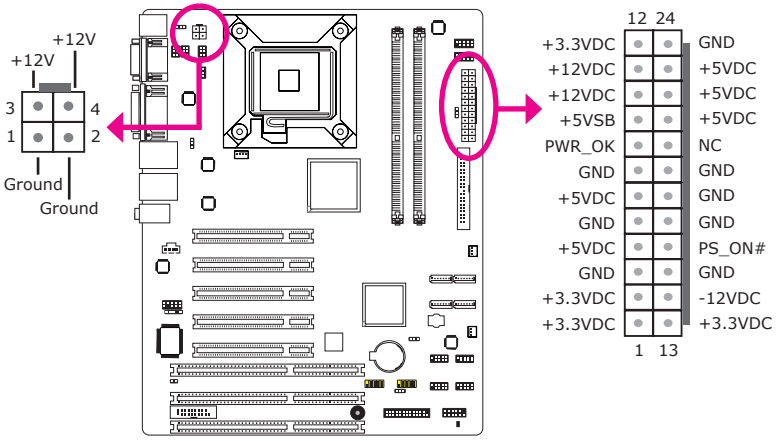


The board supports the chassis intrusion detection function. Connect the chassis intrusion sensor cable from the chassis to this connector. When the system's power is on and a chassis intrusion occurred, an alarm will sound. When the system's power is off and a chassis intrusion occurred, the alarm will sound only when the system restarts.

Hardware Monitor for Windows

Install the "Hardware Monitor for Windows" utility. By default, the chassis intrusion detection function is disabled. When enabled, a warning message will appear when the chassis is open. The utility can also be configured so that a beeping alarm will sound when the chassis is open. Refer to the "Hardware Monitor for Windows" section in chapter 4 for more information.

Power Connectors



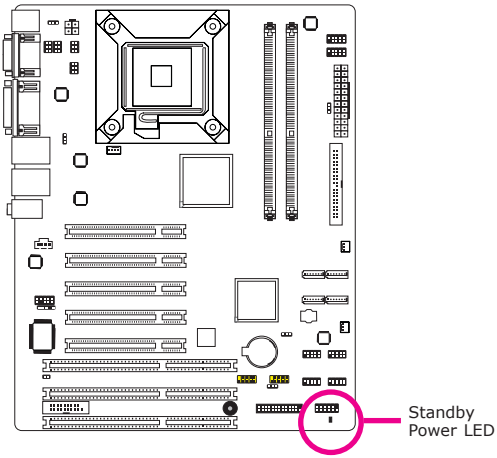
Use a power supply that complies with the ATX12V Power Supply Design Guide Version 1.1. An ATX12V power supply unit has a standard 24-pin ATX main power connector that must be inserted into the 24-pin connector. The 4-pin +12V power connector enables the delivery of more +12VDC current to the processor's Voltage Regulator Module (VRM).

The power connectors from the power supply unit are designed to fit the 24-pin and 4-pin connectors in only one orientation. Make sure to find the proper orientation before plugging the connectors.

The system board requires a minimum of 300 Watt power supply to operate. Your system configuration (CPU power, amount of memory, add-in cards, peripherals, etc.) may exceed the minimum power requirement. To ensure that adequate power is provided, we strongly recommend that you use a minimum of 400 Watt (or greater) power supply.

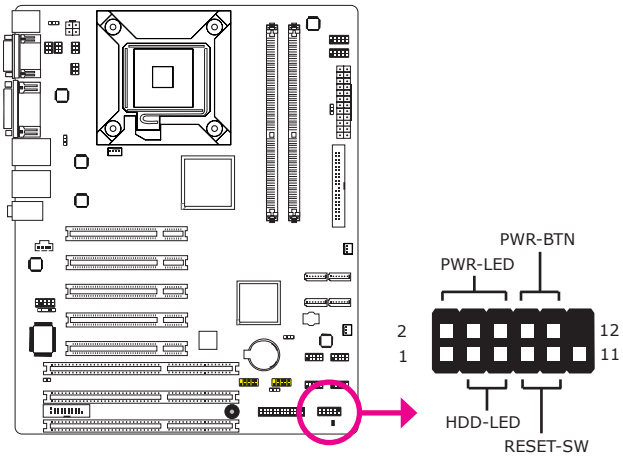
Important:
Insufficient power supplied to the system may result in instability or the add-in boards and peripherals not functioning properly. Calculating the system's approximate power usage is important to ensure that the power supply meets the system's consumption requirements.

Standby Power LED



This LED will light red when the system is in the standby mode. It indicates that there is power on the system board. Power-off the PC then unplug the power cord prior to installing any devices. Failure to do so will cause severe damage to the motherboard and components.

Front Panel Connectors



HDD-LED - HDD LED

This LED will light when the hard drive is being accessed.

RESET SW - Reset Switch

This switch allows you to reboot without having to power off the system.

PWR-BTN - Power Switch

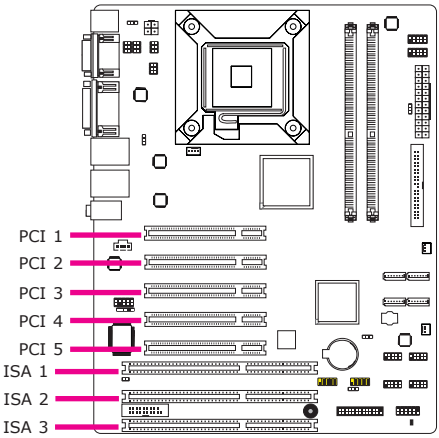
This switch is used to power on or off the system.

PWR-LED - Power/Standby LED

When the system's power is on, this LED will light. When the system is in the S1 (POS - Power On Suspend) state, it will blink every second. When the system is in the S3 (STR - Suspend To RAM) state, it will blink every 4 seconds.

	Pin	Pin Assignment		Pin	Pin Assignment
N. C.	1	N. C.	PWR-LED	2 4 6	LED Power LED Power Signal
HDD-LED	3 5	HDD Power Signal	PWR-BTN	8 10	Signal GND
RESET SW	7 9	Ground RST Signal			
N. C.	11	N. C.	Key	12	Key

Expansion Slots



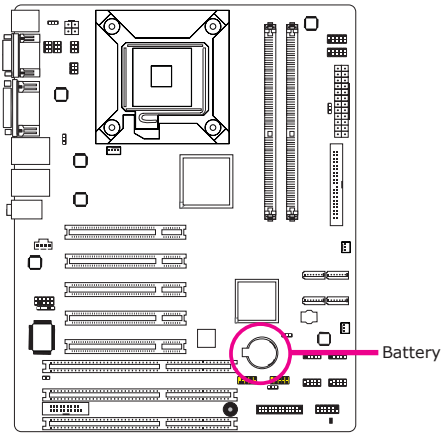
PCI Slots

The PCI slots support expansion cards that comply with PCI specifications.

ISA Slots

The ISA slot is used to connect ISA-compatible expansion cards.

Battery



The lithium ion battery powers the real-time clock and CMOS memory. It is an auxiliary source of power when the main power is shut off.

Safety Measures

- Danger of explosion if battery incorrectly replaced.
- Replace only with the same or equivalent type recommend by the manufacturer.
- Dispose of used batteries according to local ordinance.

Chapter 3 - BIOS Setup

Overview

The BIOS is a program that takes care of the basic level of communication between the CPU and peripherals. It contains codes for various advanced features found in this system board. The BIOS allows you to configure the system and save the configuration in a battery-backed CMOS so that the data retains even when the power is off. In general, the information stored in the CMOS RAM of the EEPROM will stay unchanged unless a configuration change has been made such as a hard drive replaced or a device added.

It is possible that the CMOS battery will fail causing CMOS data loss. If this happens, you need to install a new CMOS battery and reconfigure the BIOS settings.

Note:
The BIOS is constantly updated to improve the performance of the system board; therefore the BIOS screens in this chapter may not appear the same as the actual one. These screens are for reference purpose only.

Default Configuration

Most of the configuration settings are either predefined according to the Load Optimal Defaults settings which are stored in the BIOS or are automatically detected and configured without requiring any actions. There are a few settings that you may need to change depending on your system configuration.

Entering the BIOS Setup Utility

The BIOS Setup Utility can only be operated from the keyboard and all commands are keyboard commands. The commands are available at the right side of each setup screen.

The BIOS Setup Utility does not require an operating system to run. After you power up the system, the BIOS message appears on the screen and the memory count begins. After the memory test, the message "Press DEL to run setup" will appear on the screen. If the message disappears before you respond, restart the system or press the "Reset" button. You may also restart the system by pressing the <Ctrl> <Alt> and <Del> keys simultaneously.

Legends

Keys	Function
Right and Left arrows	Moves the highlight left or right to select a menu.
Up and Down arrows	Moves the highlight up or down between submenus or fields.
<Esc>	Exits to the BIOS Setup Utility.
+ (plus key)	Scrolls forward through the values or options of the highlighted field.
- (minus key)	Scrolls backward through the values or options of the highlighted field.
Tab	Selects a field.
<F1>	Displays General Help.
<F7>	Discard Changes.
<F8>	Load fail-safe default values.
<F9>	Load optimal default values.
<F10>	Saves and exits the Setup program.
<Enter>	Press <Enter> to enter the highlighted submenu.

Scroll Bar

When a scroll bar appears to the right of the setup screen, it indicates that there are more available fields not shown on the screen. Use the up and down arrow keys to scroll through all the available fields.

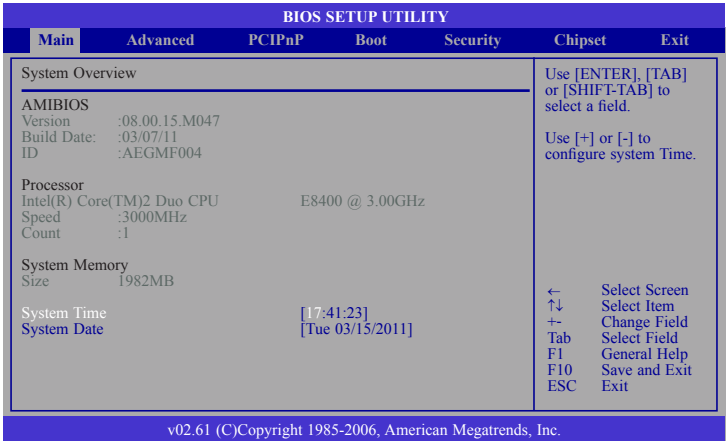
Submenu

When "▸" appears on the left of a particular field, it indicates that a submenu which contains additional options are available for that field. To display the submenu, move the highlight to that field and press <Enter>.

AMI BIOS Setup Utility

Main

The Main menu is the first screen that you will see when you enter the BIOS Setup Utility.



AMI BIOS

Displays the detected BIOS information.

Processor

Displays the detected processor information.

System Memory

Displays the detected system memory information.

System Time

The time format is <hour>, <minute>, <second>. The time is based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00. Hour displays hours from 00 to 23. Minute displays minutes from 00 to 59. Second displays seconds from 00 to 59.

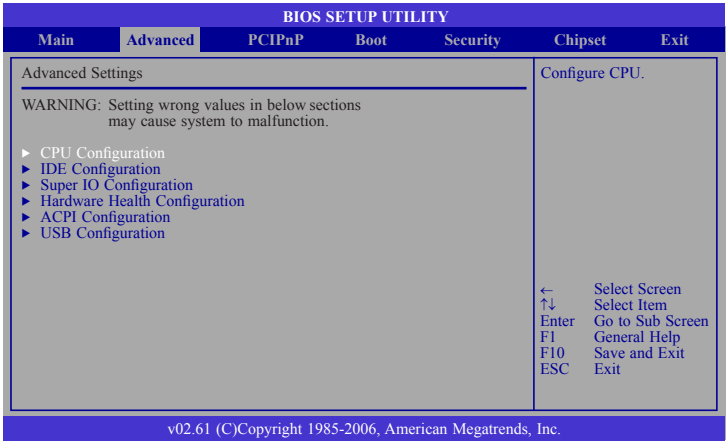
System Date

The date format is <day>, <month>, <date>, <year>. Day displays a day, from Sunday to Saturday. Month displays the month, from January to December. Date displays the date, from 1 to 31. Year displays the year, from 1980 to 2099.

Advanced

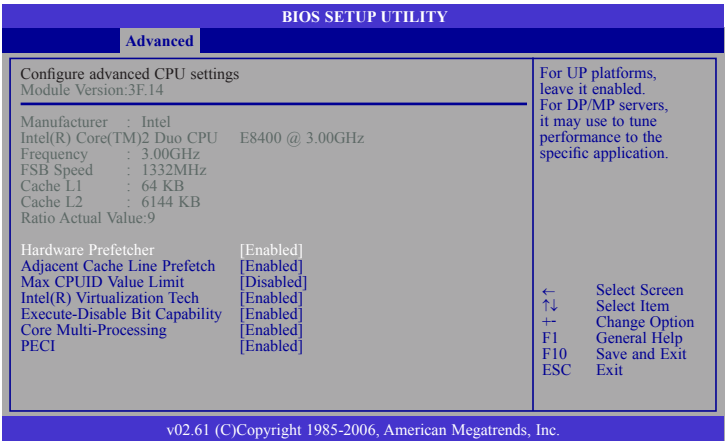
The Advanced menu allows you to configure your system for basic operation. Some entries are defaults required by the system board, while others, if enabled, will improve the performance of your system or let you set some features according to your preference.

Important:
Setting incorrect field values may cause the system to malfunction.



CPU Configuration

This section is used to configure the CPU. It will also display detected CPU information.


BIOS SETUP UTILITY
Advanced
Configure advanced CPU settings
Module Version:3F.14
Manufacturer : Intel
Intel(R) Core(TM)2 Duo CPU E8400 @ 3.00GHz
Frequency : 3.00GHz
FSB Speed : 1332MHz
Cache L1 : 64 KB
Cache L2 : 6144 KB
Ratio Actual Value:9
Hardware Prefetcher [Enabled]
Adjacent Cache Line Prefetch [Enabled]
Max CPUID Value Limit [Disabled]
Intel(R) Virtualization Tech [Enabled]
Execute-Disable Bit Capability [Enabled]
Core Multi-Processing [Enabled]
PECI [Enabled]
For UP platforms, leave it enabled. For DP/MP servers, it may use to tune performance to the specific application.
← Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
v02.61 (C)Copyright 1985-2006, American Megatrends, Inc.

Hardware Prefetcher

Enables or disables the Hardware Prefetcher feature.

Adjacent Cache Line Prefetch

Enables or disables the Adjacent Cache Line Prefetch feature.

Max CPUID Value Limit

Set this field to Disabled when using Windows XP. Set this field to Enabled when using legacy operating systems so that the system will boot even when it doesn't support CPUs with extended CPUID function.

Intel(R) Virtualization Tech

When this field is set to Enabled, the VMM can utilize the additional hardware capabilities provided by the Intel Virtualization technology. A full reset is required to change the setting.

Execute Disable Bit Capability

When this field is set to Disabled, it will force the XD feature flag to always return to 0.

Core Multi-Processing

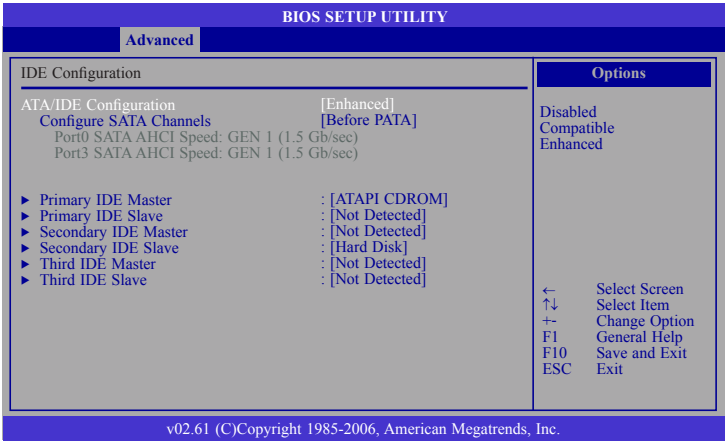
When this field is set to Disabled, it will disable one execution core of each CPU die.

PECI

Enables or disables the PECI interface.

IDE Configuration

This section is used to configure the IDE drives.



ATA/IDE Configuration

These fields are used to configure the IDE device mode. The options are Disabled, Compatible and Enhanced.

Compatible
Legacy IDE channels will appear allowing you to configure the devices. The options are "SATA Only", "PATA PRI, SATA Sec", "SATA Pri, PATA Sec", and "PATA Only".

Enhanced
"Configure SATA Channels" will appear allowing you to configure the devices.

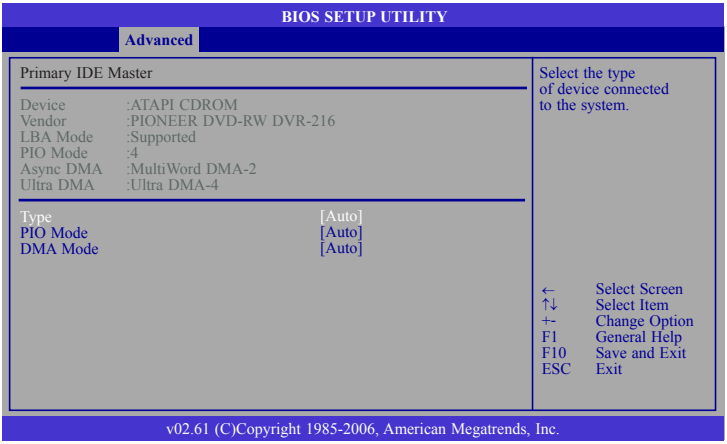
Configure SATA Channels

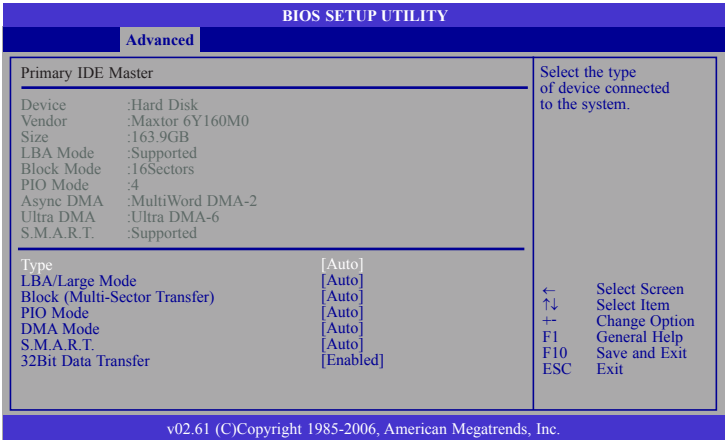
Before PATA
The storage device under SATA channels will appear before the IDE PATA device.

Beind PATA
The storage device under SATA channels will appear after the IDE PATA device.

Primary IDE Master to Third IDE Slave

When you enter the BIOS Setup Utility, the BIOS will auto detect the existing IDE devices then displays the status of the detected devices. To configure an IDE drive, move the cursor to a field then press <Enter>.





Type

Selects the type of IDE drive connected to the system.

LBA/Large Mode

Auto
If the device supports LBA mode, the LBA mode will automatically be enabled, that is, if the device was not previuosly formatted with the LBA mode disabled.

Disabled
Disables the LBA mode.

Block (Multi-Sector Transfer)

Auto
Data transfer from and to the device occurs multiple sectors at a time.

Disabled
Data transfer from and to the device occurs one sector at a time.

PIO Mode

Selects the data transfer mode. PIO means Programmed Input/Output. Rather than have the BIOS issue a series of commands to effect a transfer to or from the disk drive, PIO allows the BIOS to tell the controller what it wants and then let the controller and the CPU perform the complete task by themselves. Your system supports five modes, 0 to 4, which primarily differ in timing. When Auto (default) is selected, the BIOS will select the best available mode after checking your drive.

Auto
The BIOS will automatically set the system according to your hard disk drive's timing.

Mode 0-4
You can select a mode that matches your hard disk drive's timing. Caution: Do not use the wrong setting or you will have drive errors.

DMA Mode

This field allows you to select the Ultra DMA in use. When Auto is selected, the BIOS will use the best available option after checking your hard drive or CD-ROM.

Auto
Automatically detects the DMA mode.

SWDMAn
SingleWord DMAn.

MWDMAn
MultiWord DMAn.

UDMAn
Ultra DMAn.

S.M.A.R.T

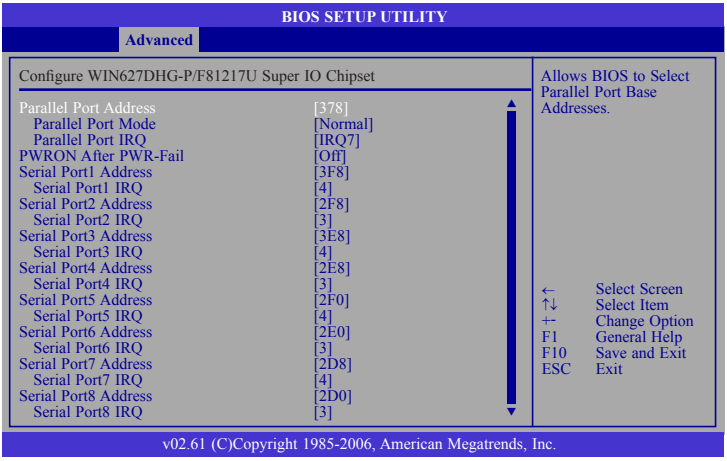
The system board supports SMART (Self-Monitoring, Analysis and Reporting Technology) hard drives. SMART is a reliability prediction technology for ATA/IDE and SCSI drives. The drive will provide sufficient notice to the system or user to backup data prior to the drive's failure. The default is Disabled. If you are using hard drives that support S.M.A.R.T., set this field to Enabled. SMART is supported in ATA/33 or later hard drives. The options are Auto, Enabled and Disabled.

32Bit Data Transfer

Enables or disables 32-bit data transfer.

Super IO Configuration

This section is used to configure the I/O functions supported by the onboard Super I/O chip.



Parallel Port Address

Allows you to manually select an I/O address for the onboard serial port.

Parallel Port Mode

The options are Normal, EPP, ECP and ECP+EPP. These apply to a standard specification and will depend on the type and speed of your device. Refer to your peripheral's manual for the best option.

Normal
Allows normal speed operation but in one direction only.

"ECP (Extended Capabilities Port)"
Allows parallel port to operate in bidirectional mode and at a speed faster than the normal mode's data transfer rate.

"EPP (Enhanced Parallel Port)"
Allows bidirectional parallel port operation at maximum speed.

If you selected EPP, the "EPP Mode Select" field is configurable. If you selected ECP, the "ECP Mode Use DMA" field is configurable. If you selected ECP+EPP, both "EPP Mode Select" and "ECP Mode Use DMA" are configurable.

Parallel Port IRQ

Select an IRQ for the parallel port.

PWRON After PWR-Fail

Off
When power returns after an AC power failure, the system's power is off. You must press the Power button to power-on the system.

On
When power returns after an AC power failure, the system will automatically power-on.

Former-Sts
When power returns after an AC power failure, the system will return to the state where you left off before power failure occurs. If the system's power is off when AC power failure occurs, it will remain off when power returns. If the system's power is on when AC power failure occurs, the system will power-on when power returns.

Serial Port1 Address to Serial Port8 Address

3F8, 2F8, 3E8, 2E8, 2F0, 2E0, 2D8, 2D0
Allows you to manually select an I/O address for the onboard serial port 1 to serial port 8.

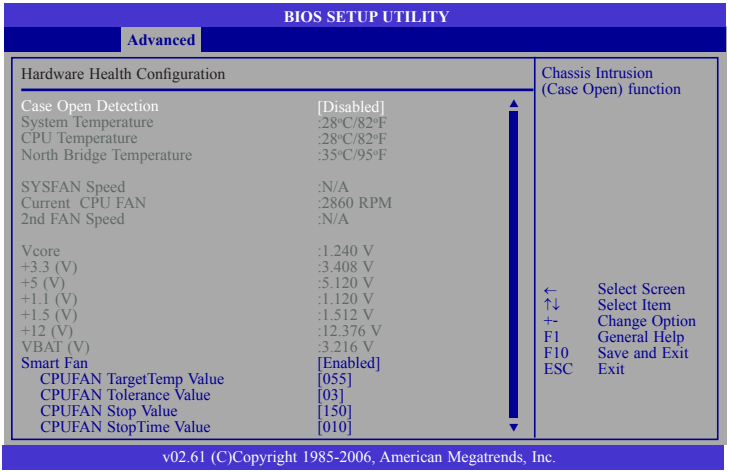
Disabled
Disables the onboard serial port 1 to serial port 8.

Serial Port1 IRQ to Serial Port8 IRQ

These fields are used to select an IRQ for the onboard serial port 1 to serial port 8.

Hardware Health Configuration

This section is used to configure the hardware monitor function.



Case Open Detection

Set this field to Enabled to allow the system to alert you of a chassis intrusion event.

Smart Fan

The CPU speed will rotate according to the CPU's temperature. The higher the temperature, the faster the speed of rotation. The options are enabled and disabled.

CPUFAN TargetTemp Value

By default, the CPU fan is set to run at full speed. If you want to reduce the fan's noise, you can slow down the fan's speed by selecting an option in this field. The options are from 0 to 127. Do not slow down the speed by lower than 40% to prevent CPU overheat.

CPUFAN Tolerance Value

This field is used to select the tolerance value of the CPU's temperature. The options are from 0 to 15. If you selected 3, it allows the temperature to run 3 degrees higher or lower. The CPU fan will smartly adjust it's speed in accordance to the temperature.

CPUFAN Stop Value

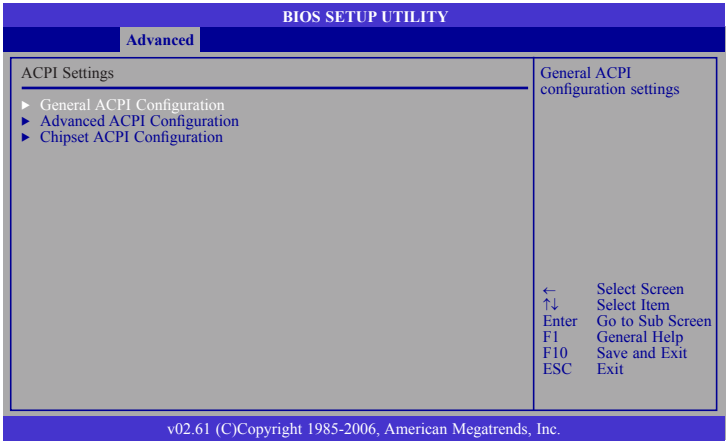
Used to enter the stop value of the CPU fan. The options are from 0 to 255.

CPUFAN StopTime Value

Used to enter the stop-time value of the CPU fan. The options are from 0 to 255 (0.1 second per unit).

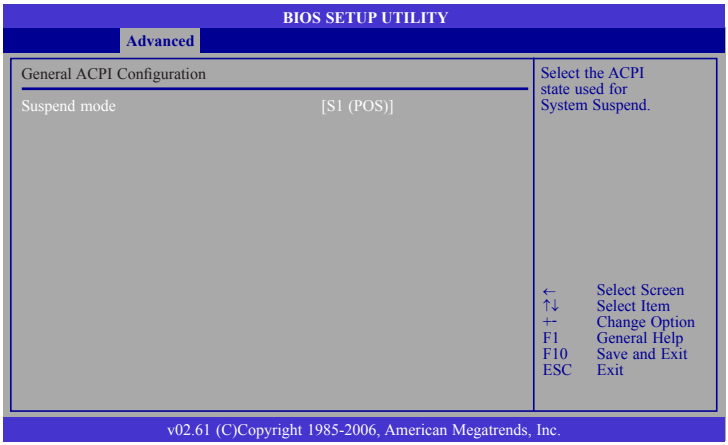
ACPI Configuration

This section is used to configure ACPI.



General ACPI Configuration

Configures the general ACPI settings.



Suspend Mode

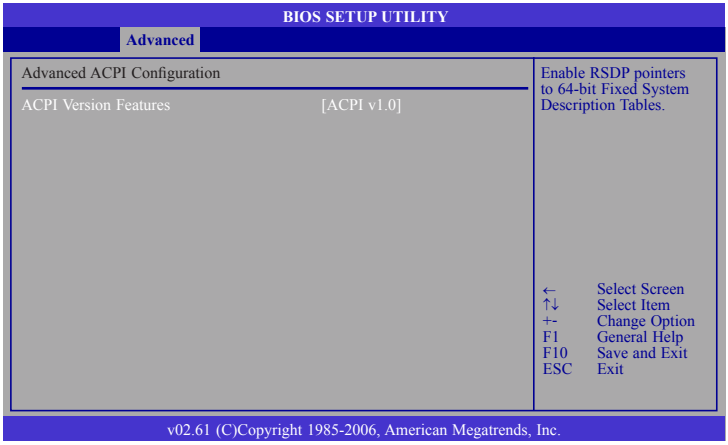
This field is used to select the type of Suspend mode.

S1(POS)
Enables the Power On Suspend function.

S3(STR)
Enables the Suspend to RAM function.

Advanced ACPI Configuration

Configures additional ACPI functions.

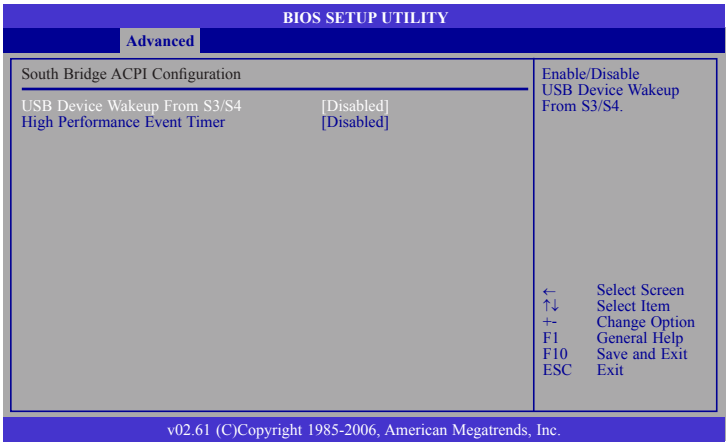


ACPI Version Features

Selects the ACPI version. The options are ACPI v1.0, ACPI v2.0 and ACPI v3.0.

Chipset ACPI Configuration

Configures relevant chipset ACPI functions.



USB Device WakeUp From S3/S4

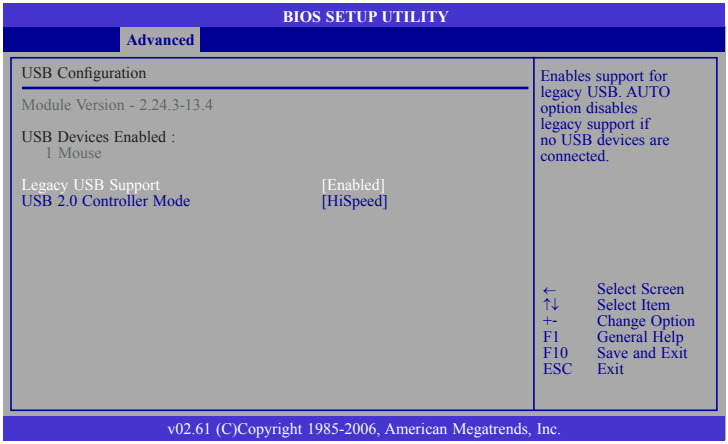
This field, when enabled, allows you to use a USB keyboard or USB mouse to wake up a system that is in the S3 (STR - Suspend To RAM) or S4 state.

High Performance Event Timer

Enables or disables the event timer.

USB Configuration

This section is used to configure USB devices.


BIOS SETUP UTILITY
Advanced
USB Configuration
Module Version - 2.24.3-13.4
USB Devices Enabled :
1 Mouse
Legacy USB Support [Enabled]
USB 2.0 Controller Mode [HiSpeed]
Enables support for legacy USB. AUTO option disables legacy support if no USB devices are connected.
← Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
v02.61 (C)Copyright 1985-2006, American Megatrends, Inc.

Legacy USB Support

Enabled
Enables Legacy USB.

Auto
Disables support for Legacy when no USB devices are connected.

Disabled
Keeps USB devices available only for EFI applications.

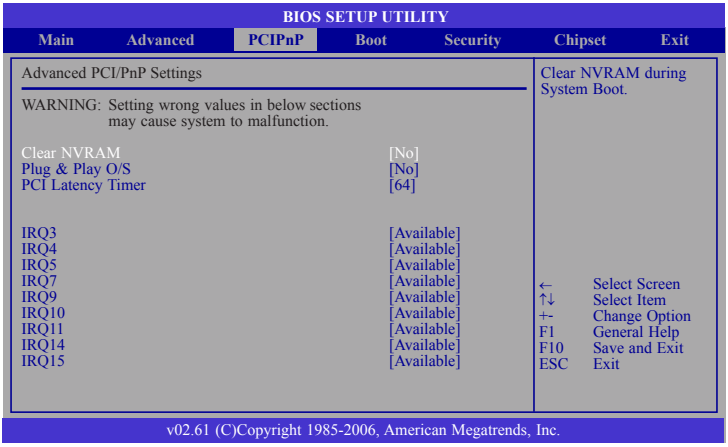
USB 2.0 Controller Mode

Configures the USB 2.0 controller in HiSpeed (480Mbps) or FullSpeed (12Mbps).

PCIPnP

The PCIPnP menu is used to configure PCI Plug and Play devices.

Important:
Setting incorrect field values may cause the system to malfunction.



Clear NVRAM

This field allows clearing the NVRAM during system boot.

Plug & Play O/S

Yes
The operating system configures Plug and Play (PnP) devices that are not required to boot in a Plug and Play supported operating system.

No
The BIOS configures all the devices in the system.

PCI Latency Timer

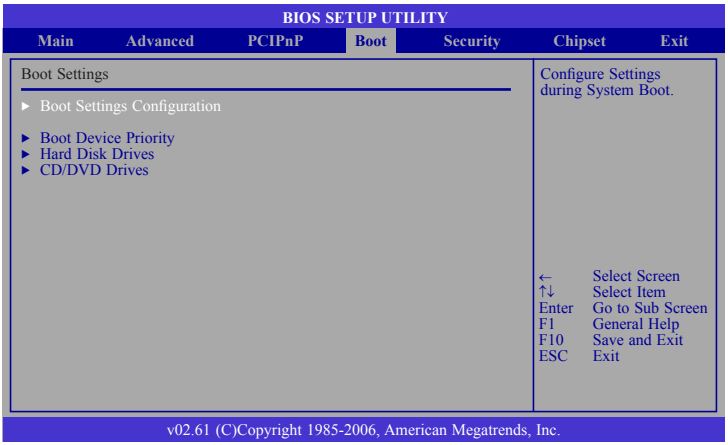
This feature is used to select the length of time each PCI device will control the bus before another takes over. The larger the value, the longer the PCI device can retain control of the bus. Since each access to the bus comes with an initial delay before any transaction can be made, low values for the PCI Latency Timer will reduce the effectiveness of the PCI bandwidth while higher values will improve it.

IRQ3 to IRQ15

Available
The specified IRQ is available for PCI/PnP devices.

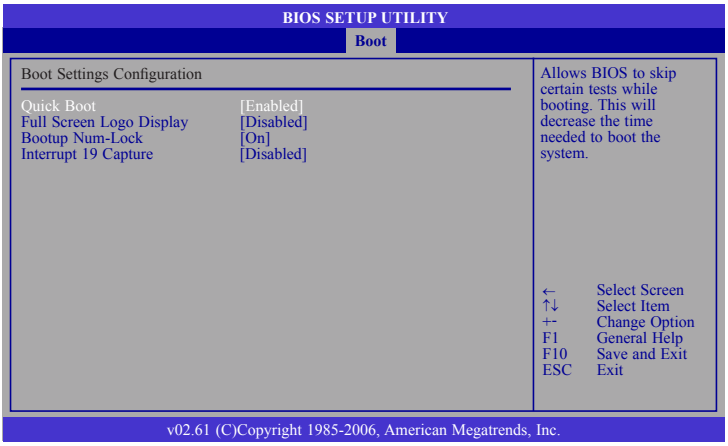
Reserved
The specified IRQ is reserved for Legacy ISA devices.

Boot



Boot Settings Configuration

This section is used to configure settings during system boot.


BIOS SETUP UTILITY
Boot
Boot Settings Configuration
Quick Boot [Enabled]
Full Screen Logo Display [Disabled]
Bootup Num-Lock [On]
Interrupt 19 Capture [Disabled]
Allows BIOS to skip certain tests while booting. This will decrease the time needed to boot the system.
← Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
v02.61 (C)Copyright 1985-2006, American Megatrends, Inc.

Quick Boot

When Enabled, the BIOS will shorten or skip some check items during POST. This will decrease the time needed to boot the system.

Full Screen Logo Display

This field is applicable only if you want a particular logo to appear during system boot-up.

Enabled
Displays OEM logo instead of the POST messages.

Disabled
Displays normal POST messages.

Bootup Num-Lock

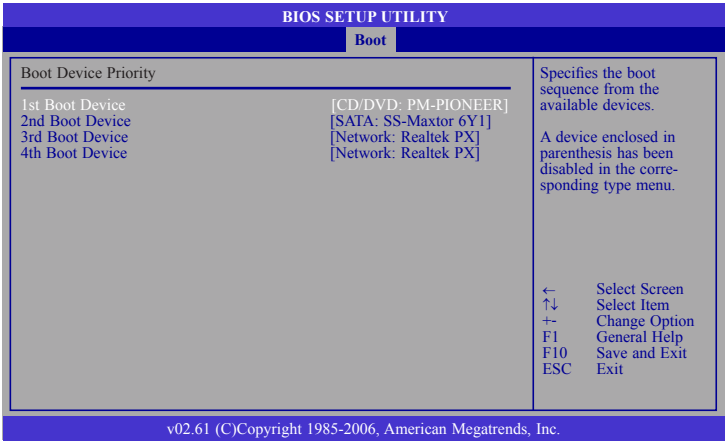
This allows you to determine the default state of the numeric keypad. By default, the system boots up with NumLock on wherein the function of the numeric keypad is the number keys. When set to Off, the function of the numeric keypad is the arrow keys.

Interrupt 19 Capture

When enabled, it allows the optional ROM to trap interrupt 19.

Boot Device Priority

This section is used to select the boot priority sequence of the devices.

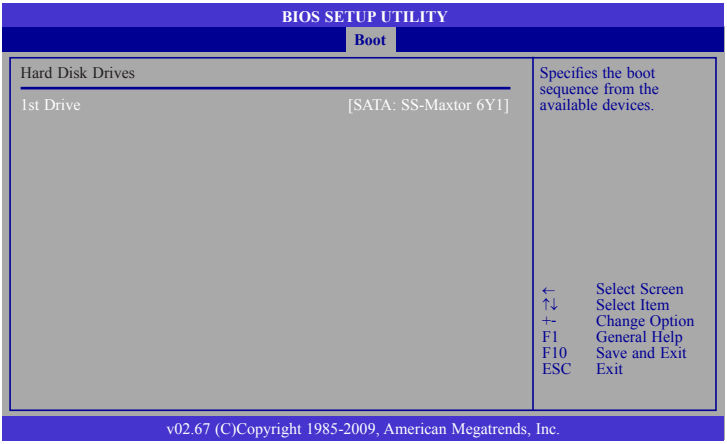


1st Boot Device to 4th Boot Device

Select the drive to boot first, second, third and fourth in the "1st Boot Device", "2nd Boot Device", "3rd Boot Device", and "4th Boot Device" fields respectively. The BIOS will boot the operating system according to the sequence of the drive selected.

Hard Disk Drives

This section is used to select the boot priority sequence of the hard drives.

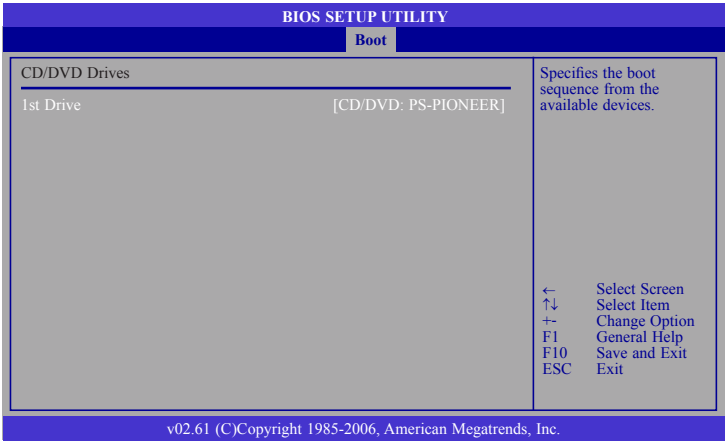


1st Drive

Selects the boot sequence of the hard drives.

CD/DVD Drives

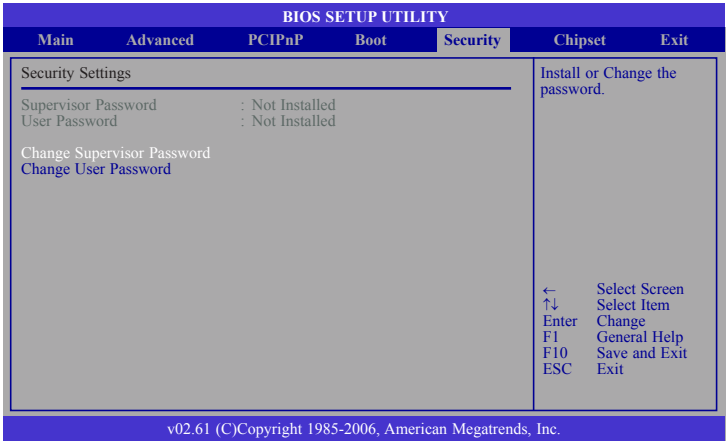
This section is used to select the boot priority sequence of the optical devices.



1st Drive

Selects the boot sequence of the optical devices.

Security

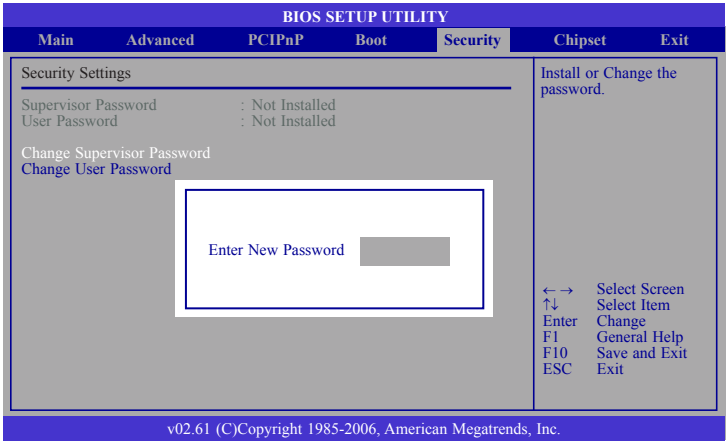


Change Supervisor Password

This field is used to set or change the supervisor password. To set a new password:

1. Select the Change Supervisor Password field then press <Enter>.

2. Type your password in the dialog box then press <Enter>. You are limited to six letters/numbers.



3. Press <Enter> to confirm the new password.

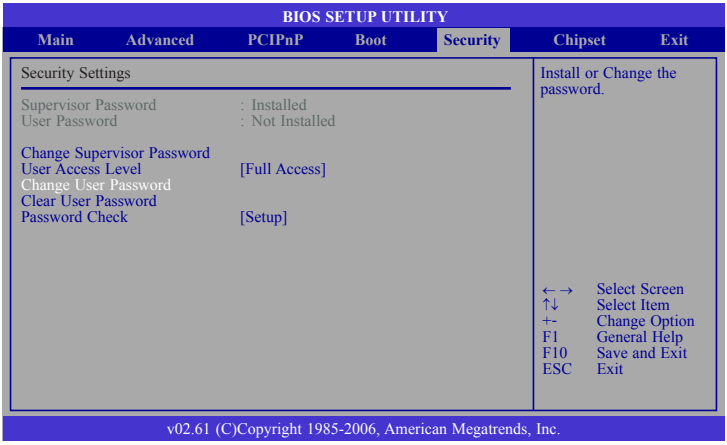
4. When the Password Installed dialog box appears, select OK.

To change the password, repeat the same steps above.

To clear the password, select Change Supervisor Password then press <Enter>. The Password Uninstalled dialog box will appear.

If you forgot the password, you can clear the password by erasing the CMOS RTC (Real Time Clock) RAM using the Clear CMOS jumper. Refer to the Jumper Settings section in chapter 2 for more information.

After you have set the supervisor password, the User Access Level field will appear.



User Access Level

Selects the access level to the fields in the Setup utility.

Limited
Allows you to change settings to some fields such as Date and Time.

No Access
Prevents access to the Setup utility.

View Only
Allows you to view the settings but does not allow you to change the settings.

Full Access
Allows you to change settings to all the fields in the utility.

Change User Password

This field is used to set or change the user password.

To set a new password:

1. Select the Change User Password field then press <Enter>.
2. Type your password in the dialog box then press <Enter>. You are limited to six letters/numbers.
3. Press <Enter> to confirm the new password.
4. When the Password Installed dialog box appears, select OK.

To change the password, repeat the same steps above.

After you have set the user password, the Clear User Password and Password Check fields will appear.

Clear User Password

To clear the password, select Clear User Password then press <Enter>. The Password Uninstalled dialog box will appear.

Password Check

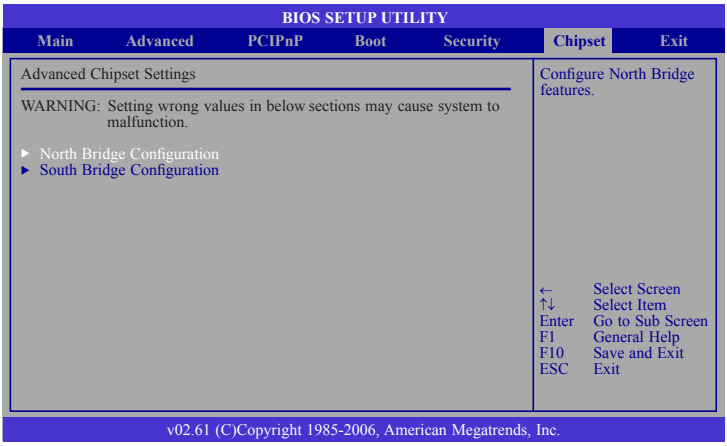
Setup
The BIOS checks for the user password whenever accessing the Setup utility.

Always
The BIOS checks for the user password when accessing the Setup utility and booting the system.

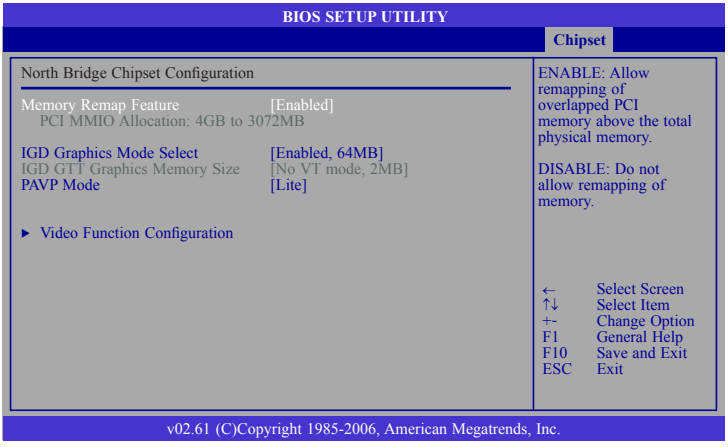
Chipset

This section is used to configure the system based on the specific features of the chipset.

Important:
Setting incorrect field values may cause the system to malfunction.



North Bridge Configuration


BIOS SETUP UTILITY
Chipset
North Bridge Chipset Configuration
Memory Remap Feature [Enabled]
PCI MMIO Allocation: 4GB to 3072MB
IGD Graphics Mode Select [Enabled, 64MB]
IGD GTT Graphics Memory Size [No VT mode, 2MB]
PAVP Mode [Lite]
Video Function Configuration
ENABLE: Allow remapping of overlapped PCI memory above the total physical memory.
DISABLE: Do not allow remapping of memory.
← Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
v02.61 (C)Copyright 1985-2006, American Megatrends, Inc.

Memory Remap Feature

Enabled
Allows remapping of overlapped PCI memory above the total physical memory.

Disabled
Does not allow remapping of memory.

IGD Graphics Mode Select

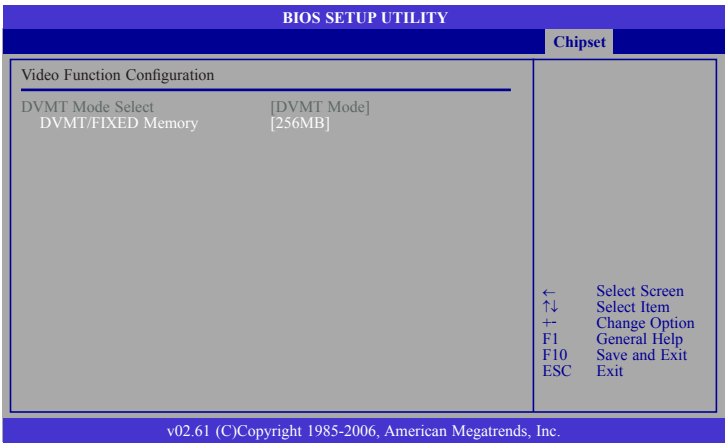
Selects the amount of system memory used by the internal graphics device. The options are Enabled (32MB, 64MB and 128MB) and Disabled.

PAVP Mode

Enables the PAVP mode used by the internal graphics device.

Enables or disables the GMCH's Protected Audio Video Path.

Video Function Configuration



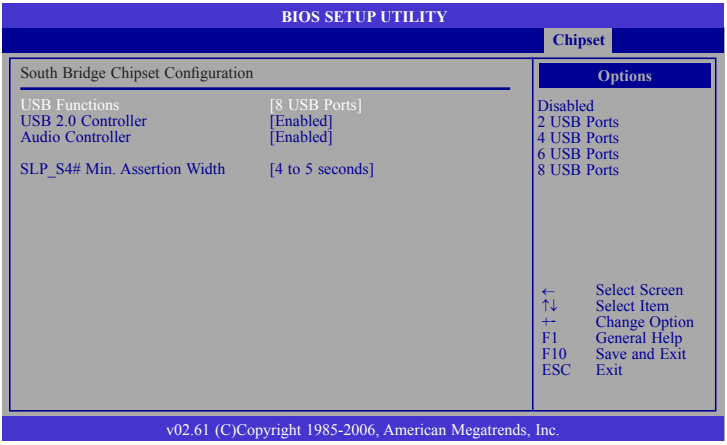
DVMT Mode Select

DVMT Mode (Dynamic Video Memory Technology)
Memory that is dynamically allocated based on memory requests made by an application and are released back to the system once the requesting application has been terminated.

DVMT/FIXED Memory

Selects the graphics memory size used by the DVMT/Fixed mode. The options are 128MB, 256MB and Maximum DVMT.

South Bridge Configuration



USB Functions

Selects the number of USB ports you want enabled.

USB 2.0 Controller

This field is used to enable or disable USB 2.0.

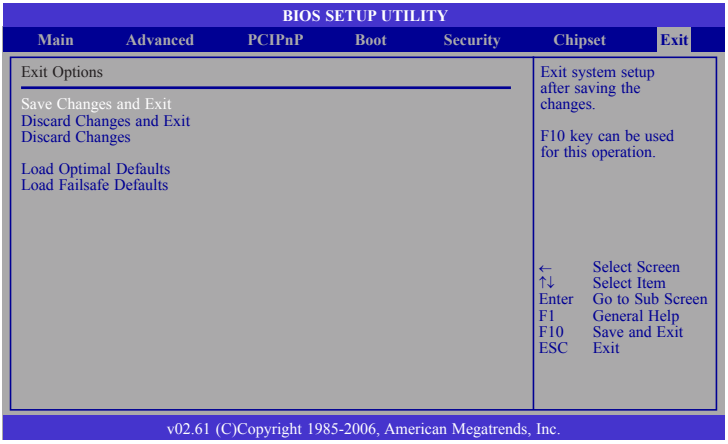
Audio Controller

Enables or disables the audio controller.

SLP_S4# Min. Assertion Width

The options are 1 to 2 seconds, 2 to 3 seconds, 3 to 4 seconds and 4 to 5 seconds.

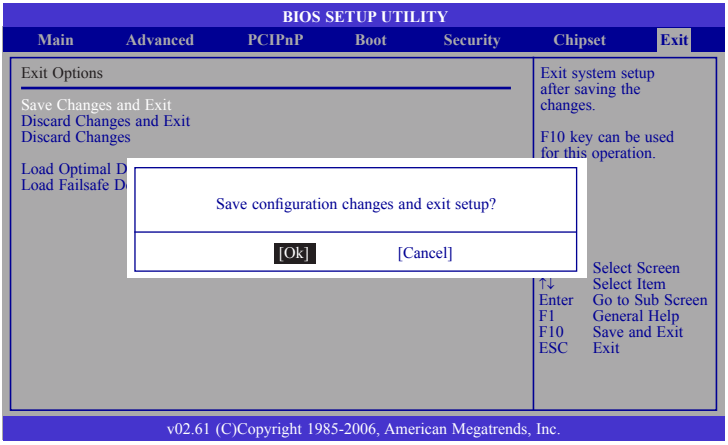
Exit


BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Exit
Exit Options
Save Changes and Exit
Discard Changes and Exit
Discard Changes
Load Optimal Defaults
Load Failsafe Defaults
Exit system setup after saving the changes.
F10 key can be used for this operation.
← Select Screen
↑↓ Select Item
Enter Go to Sub Screen
F1 General Help
F10 Save and Exit
ESC Exit
v02.61 (C)Copyright 1985-2006, American Megatrends, Inc.

Save Changes and Exit

To save the changes and exit the Setup utility, select this field then press <Enter>. A dialog box will appear. Confirm by selecting OK.

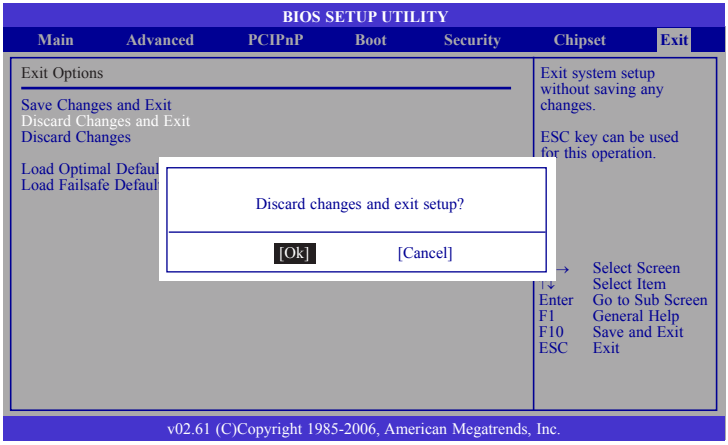
You can also press <F10> to save and exit Setup.



Discard Changes and Exit

To exit the Setup utility without saving the changes, select this field then press <Enter>. A dialog box will appear. Confirm by selecting OK.

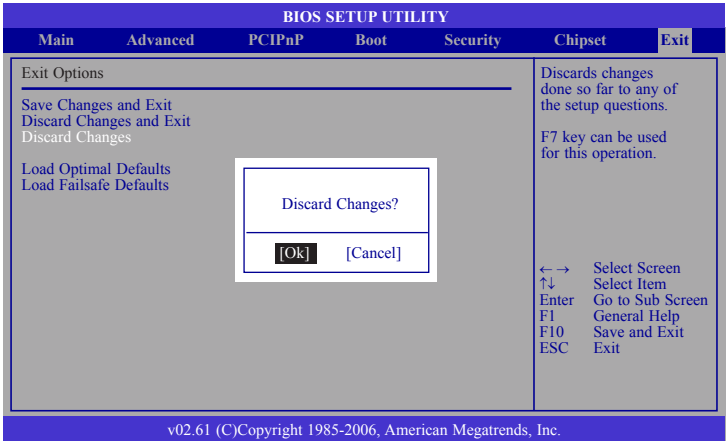
You can also press <ESC> to exit without saving the changes.



Discard Changes

To discard the changes, select this field then press <Enter>. A dialog box will appear. Confirm by selecting OK to discard all changes made and restore the previously saved settings.

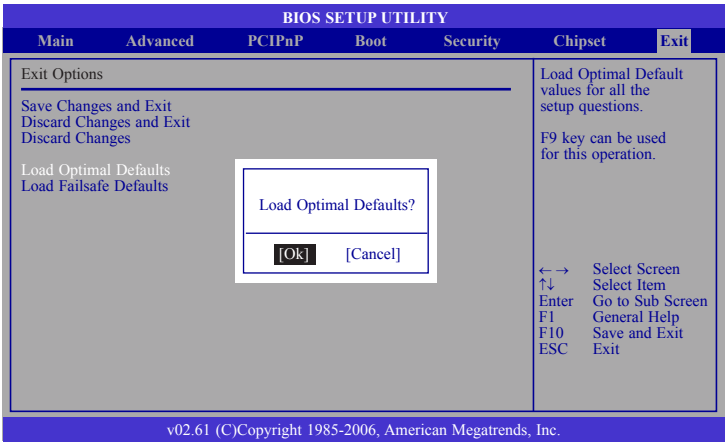
You can also press <F7> to discard the changes.



Load Optimal Defaults

To load optimal default values from the BIOS ROM, select this field then press <Enter>. A dialog box will appear. Confirm by selecting OK.

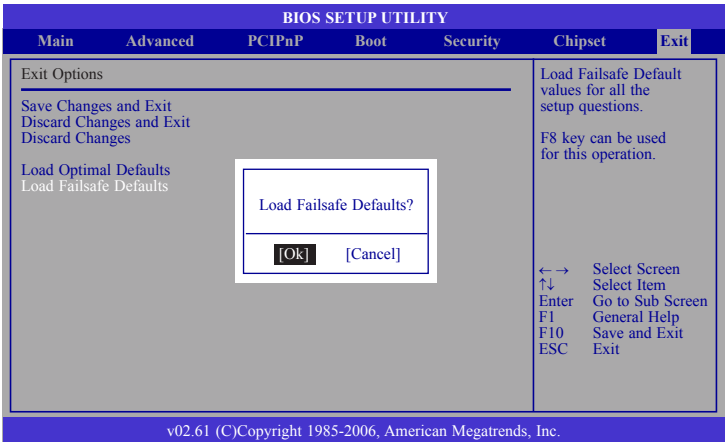
You can also press <F9> to load optimal default values.



Load Failsafe Defaults

To load the fail-safe default values from the BIOS ROM, select this field then press <Enter>. A dialog box will appear. Confirm by selecting OK.

You can also press <F8> to load the fail-safe default values.



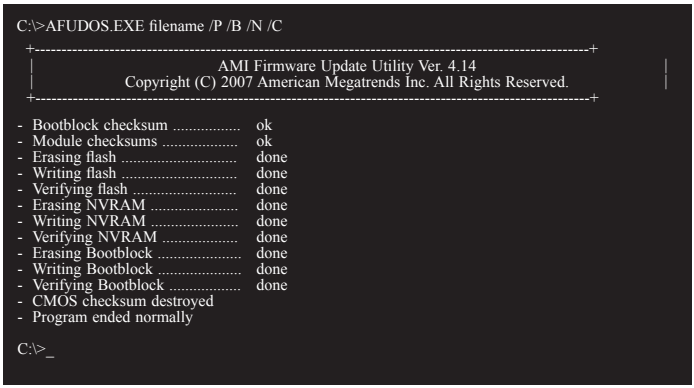
Updating the BIOS

To update the BIOS, you will need the new BIOS file and a flash utility, AFUDOS. EXE. Please contact technical support or your sales representative for the files.

To execute the utility, type:

A:> AFUDOS BIOS_File_Name /b /n /c /p

then press <Enter>.


C:\>AFUDOS.EXE filename /P /B /N /C
AMI Firmware Update Utility Ver. 4.14
Copyright (C) 2007 American Megatrends Inc. All Rights Reserved.
- Bootblock checksum ..... ok
- Module checksums ..... ok
- Erasing flash ..... done
- Writing flash ..... done
- Verifying flash ..... done
- Erasing NVRAM ..... done
- Writing NVRAM ..... done
- Verifying NVRAM ..... done
- Erasing Bootblock ..... done
- Writing Bootblock ..... done
- Verifying Bootblock ..... done
- CMOS checksum destroyed
- Program ended normally
C:\>_

Chapter 4 - Supported Software

The CD that came with the system board contains drivers, utilities and software applications required to enhance the performance of the system board.

Insert the CD into a CD-ROM drive. The autorun screen (Mainboard Utility CD) will appear. If after inserting the CD, "Autorun" did not automatically start (which is, the Mainboard Utility CD screen did not appear), please go directly to the root directory of the CD and double-click "Setup".

Microsoft .NET Framework 3.5 (for Windows XP only)

Note:
Before installing Microsoft .NET Framework 3.5, make sure you have updated your Windows XP operating system to Service Pack 3.

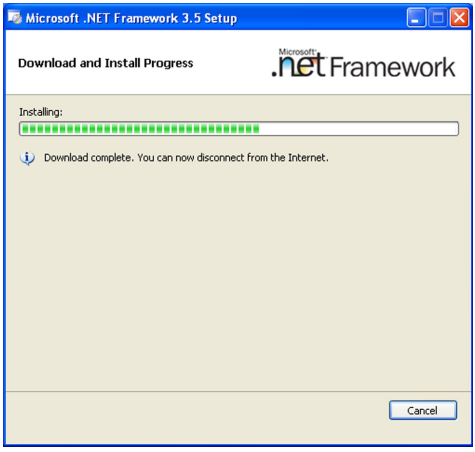
To install the driver, click "Microsoft .NET Framework 3.5" on the main menu.

1. Read the license agreement carefully.

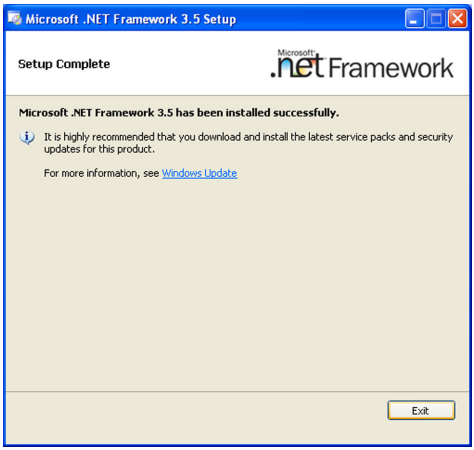
   Click "I have read and accept the terms of the License Agreement" then click Install.

Microsoft .NET Framework 3.5 Setup
Welcome to Setup
Microsoft .net Framework
Be sure to carefully read and understand all the rights and restrictions described in the license terms. You must accept the license terms before you can install the software.
MICROSOFT SOFTWARE SUPPLEMENTAL LICENSE TERMS
Press the Page Down key to see more text.
Print
I have read and ACCEPT the terms of the License Agreement
I DO NOT ACCEPT the terms of the License Agreement
Send information about my setup experiences to Microsoft Corporation.
Details regarding the data collection policy
Download File Size: 60 MB
Download Time Estimate: 2 hr 27 min (56 kbps)
16 min (512 kbps)
Install >
Cancel

2. Setup is now installing the driver.



3. Click Exit.


Microsoft .NET Framework 3.5 Setup
Setup Complete
Microsoft .NET Framework
Microsoft .NET Framework 3.5 has been installed successfully.
It is highly recommended that you download and install the latest service packs and security updates for this product.
For more information, see Windows Update
Exit

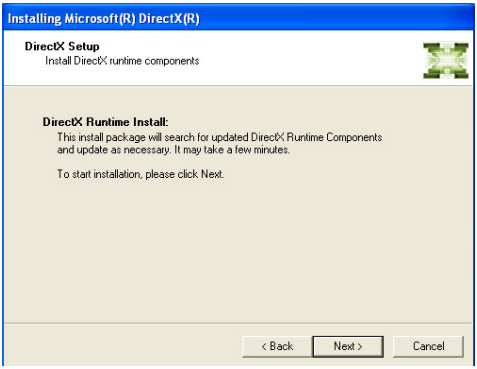
Microsoft DirectX 9.0C Driver (for Windows XP only)

To install the utility, click "Microsoft DirectX 9.0C Driver" on the main menu.

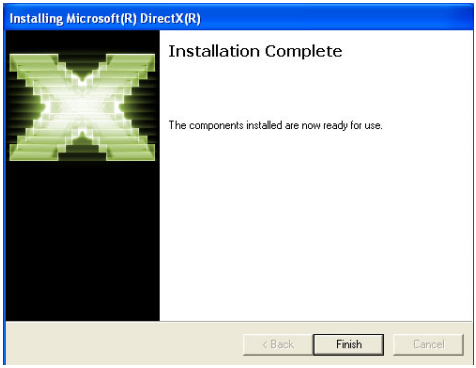
1. Click "I accept the agreement" then click Next.

Installing Microsoft(R) DirectX(R)
Welcome to setup for DirectX
The DirectX setup wizard guides you through installation of DirectX Runtime Components. Please read the following license agreement. Press the PAGE DOWN key to see the rest of the agreement. You must accept the agreement to continue the setup.
MICROSOFT DirectX 9.0c
SUPPLEMENTAL END USER LICENSE AGREEMENT FOR MICROSOFT SOFTWARE ("Supplemental EULA")
IMPORTANT: READ CAREFULLY - These Microsoft Corporation ("Microsoft") operating system components, including any "online" or electronic documentation ("OS Components") are subject to the terms and conditions of
I accept the agreement
I don't accept the agreement
< Back
Next >
Cancel

2. To start installation, click Next.


Installing Microsoft(R) DirectX(R)
DirectX Setup
Install DirectX runtime components
DirectX Runtime Install:
This install package will search for updated DirectX Runtime Components and update as necessary. It may take a few minutes.
To start installation, please click Next.
< Back
Next >
Cancel

3. Click Finish. Reboot the system for DirectX to take effect.



Intel Chipset Software Installation Utility

The Intel Chipset Software Installation Utility is used for updating Windows® INF files so that the Intel chipset can be recognized and configured properly in the system.

To install the utility, click "Intel Chipset Software Installation Utility" on the main menu.

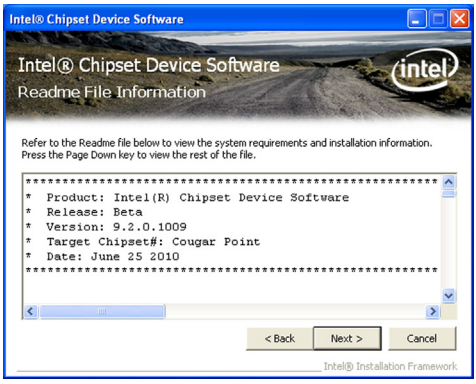
1. Setup is now ready to install the utility. Click Next.

Intel® Chipset Device Software
Intel® Chipset Device Software
Welcome to the Setup Program
This setup program will install the Intel® Chipset Device Software onto this computer. It is strongly recommended that you exit all programs before continuing.
< Back
Next >
Cancel
Intel® Installation Framework

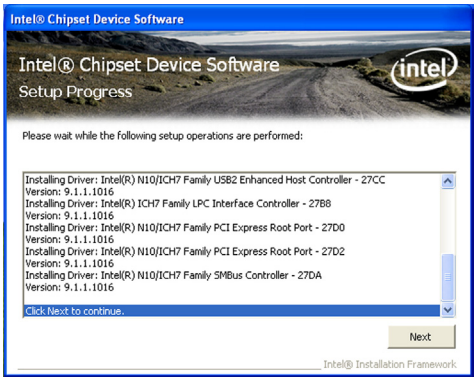
2. Read the license agreement then click Yes.

Intel® Chipset Device Software
Intel® Chipset Device Software
License Agreement
You must accept all of the terms of the license agreement in order to continue the setup program. Do you accept the terms?
INTEL SOFTWARE LICENSE AGREEMENT (Alpha / Beta, Organizational Use)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
The Software contains pre-release "alpha" or "beta" code, which may not be fully functional and which Intel Corporation ("Intel") may substantially modify in producing any "final"
< Back
Yes
No
Intel® Installation Framework

3. Go through the readme document for system requirements and installation tips then click Next.


Intel® Chipset Device Software
Intel® Chipset Device Software
Readme File Information
intel
Refer to the Readme file below to view the system requirements and installation information.
Press the Page Down key to view the rest of the file.
****
* Product: Intel(R) Chipset Device Software
* Release: Beta
* Version: 9.2.0.1009
* Target Chipset#: Cougar Point
* Date: June 25 2010
****
< Back
Next >
Cancel
Intel® Installation Framework

4. Setup is now installing the driver. Click Next to continue.


Intel® Chipset Device Software
Intel® Chipset Device Software
Setup Progress
intel
Please wait while the following setup operations are performed:
Installing Driver: Intel(R) N10/ICH7 Family USB2 Enhanced Host Controller - 27CC
Version: 9.1.1.1016
Installing Driver: Intel(R) ICH7 Family LPC Interface Controller - 27B8
Version: 9.1.1.1016
Installing Driver: Intel(R) N10/ICH7 Family PCI Express Root Port - 27D0
Version: 9.1.1.1016
Installing Driver: Intel(R) N10/ICH7 Family PCI Express Root Port - 27D2
Version: 9.1.1.1016
Installing Driver: Intel(R) N10/ICH7 Family SMBus Controller - 27DA
Version: 9.1.1.1016
Click Next to continue.
Next
Intel® Installation Framework

5. Click "Yes, I want to restart this computer now" then click Finish.

   Restarting the system will allow the new software installation to take effect.

Intel® Chipset Device Software
Intel® Chipset Device Software
Setup Is Complete
intel
You must restart this computer for the changes to take effect. Would you like to restart the computer now?
Yes, I want to restart this computer now.
No, I will restart this computer later.
Click Finish, then remove any installation media from the drives.
Finish
Intel® Installation Framework

Intel Graphics Drivers (for Windows 7 / Vista)

To install the driver, click "Intel Graphics Drivers" on the main menu.

1. Setup is now ready to install the graphics driver. Click Next.

Intel® Graphics Media Accelerator Driver
Intel® Graphics Media Accelerator Driver
Welcome to the Setup Program
intel
This setup program will install the following components:
- Intel® Graphics Media Accelerator Driver
It is strongly recommended that you exit all programs before continuing. Click Next to continue.
Automatically run WinSAT and enable the Windows Aero desktop theme (if supported).
< Back
Next >
Cancel
Intel® Installation Framework

By default, the "Automatically run WinSAT and enable the Windows Aero desktop theme" is enabled. With this enabled, after installing the graphics driver and the system rebooted, the screen will turn blank for 1 to 2 minutes (while WinSAT is running) before the Windows Vista desktop appears. The "blank screen" period is the time Windows is testing the graphics performance.

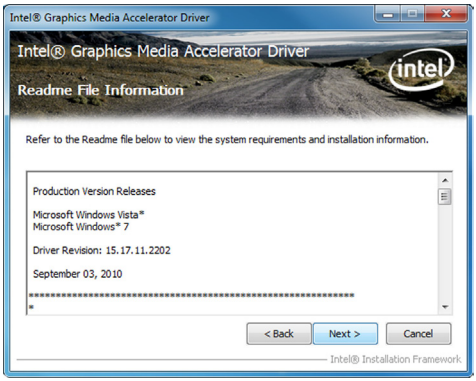
We recommend that you skip this process by disabling this function then click Next.

Intel® Graphics Media Accelerator Driver
Intel® Graphics Media Accelerator Driver
Welcome to the Setup Program
intel
This setup program will install the following components:
- Intel® Graphics Media Accelerator Driver
It is strongly recommended that you exit all programs before continuing. Click Next to continue.
Automatically run WinSAT and enable the Windows Aero desktop theme (if supported).
< Back
Next >
Cancel
Intel® Installation Framework

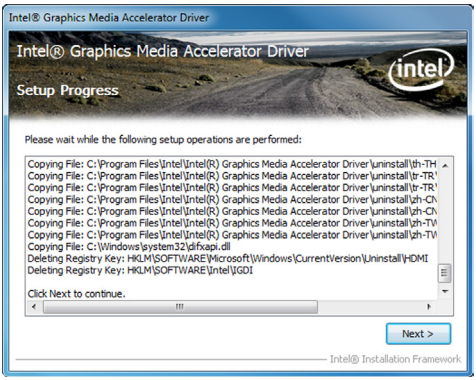
2. Read the license agreement then click Yes.

Intel® Graphics Media Accelerator Driver
Intel® Graphics Media Accelerator Driver
License Agreement
intel
You must accept all of the terms of the license agreement in order to continue the setup program. Do you accept the terms?
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
Please Also Note:
* If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor (IHV), or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT applies;
* If you are an End-User, then only Exhibit A, the INTEL SOFTWARE LICENSE AGREEMENT,
< Back
Yes
No
Intel® Installation Framework

3. Go through the readme document for system requirements and installation tips then click Next.

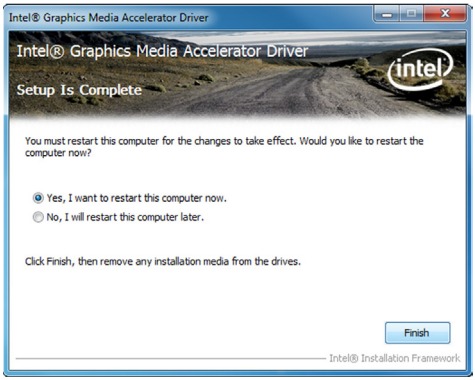


4. Setup is currently installing the driver. After installation has completed, click Next.


Intel® Graphics Media Accelerator Driver
Intel® Graphics Media Accelerator Driver
Setup Progress
intel
Please wait while the following setup operations are performed:
Copying File: C:\Program Files\Intel\Intel(R) Graphics Media Accelerator Driver\uninstall\th-TH
Copying File: C:\Program Files\Intel\Intel(R) Graphics Media Accelerator Driver\uninstall\tr-TR
Copying File: C:\Program Files\Intel\Intel(R) Graphics Media Accelerator Driver\uninstall\tr-TR
Copying File: C:\Program Files\Intel\Intel(R) Graphics Media Accelerator Driver\uninstall\zh-CN
Copying File: C:\Program Files\Intel\Intel(R) Graphics Media Accelerator Driver\uninstall\zh-CN
Copying File: C:\Program Files\Intel\Intel(R) Graphics Media Accelerator Driver\uninstall\zh-TW
Copying File: C:\Program Files\Intel\Intel(R) Graphics Media Accelerator Driver\uninstall\zh-TW
Copying File: C:\Windows\system32\difxapi.dll
Deleting Registry Key: HKLM\SOFTWARE\Microsoft\Windows\CurrentVersion\Uninstall\HDMI
Deleting Registry Key: HKLM\SOFTWARE\Intel\IGDI
Click Next to continue.
Next >
Intel® Installation Framework

5. Click "Yes, I want to restart this computer now" then click Finish.

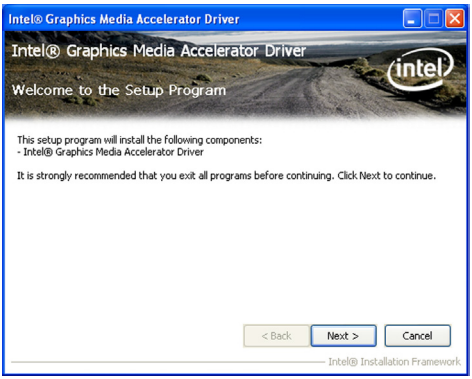
   Restarting the system will allow the new software installation to take effect.


Intel® Graphics Media Accelerator Driver
Intel® Graphics Media Accelerator Driver
Setup Is Complete
intel
You must restart this computer for the changes to take effect. Would you like to restart the computer now?
Yes, I want to restart this computer now.
No, I will restart this computer later.
Click Finish, then remove any installation media from the drives.
Finish
Intel® Installation Framework

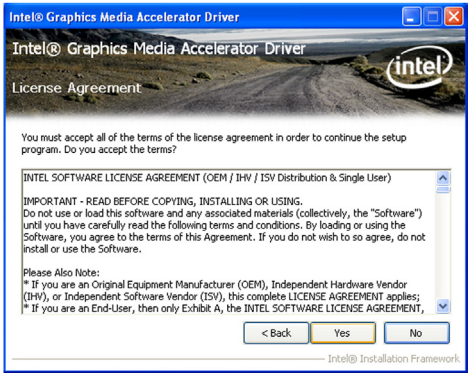
Intel Graphics Drivers (for Windows XP)

To install the driver, click "Intel Graphics Drivers" on the main menu.

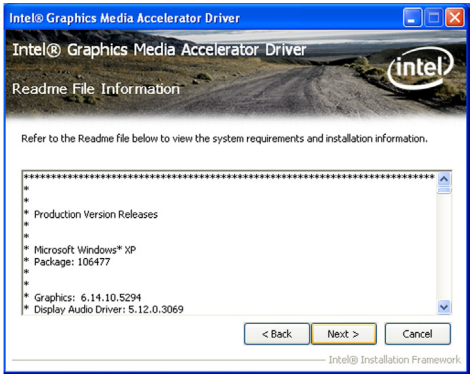
1. Setup is ready to install the graphics driver. Click Next.


Intel® Graphics Media Accelerator Driver
Intel® Graphics Media Accelerator Driver
Welcome to the Setup Program
intel
This setup program will install the following components:
- Intel® Graphics Media Accelerator Driver
It is strongly recommended that you exit all programs before continuing. Click Next to continue.
< Back
Next >
Cancel
Intel® Installation Framework

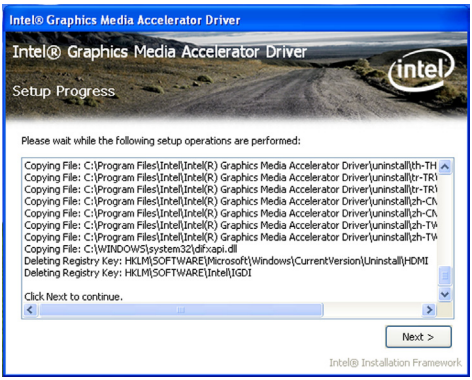
2. Read the license agreement then click Yes.


Intel® Graphics Media Accelerator Driver
Intel® Graphics Media Accelerator Driver
License Agreement
intel
You must accept all of the terms of the license agreement in order to continue the setup program. Do you accept the terms?
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
Please Also Note:
* If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor (IHV), or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT applies;
* If you are an End-User, then only Exhibit A, the INTEL SOFTWARE LICENSE AGREEMENT,
< Back
Yes
No
Intel® Installation Framework

3. Go through the readme document for more installation tips then click Next.

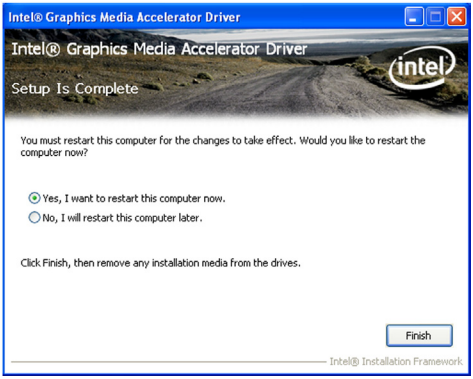

Intel® Graphics Media Accelerator Driver
Intel® Graphics Media Accelerator Driver
Readme File Information
intel
Refer to the Readme file below to view the system requirements and installation information.
* Production Version Releases
* Microsoft Windows* XP
* Package: 106477
* Graphics: 6.14.10.5294
* Display Audio Driver: 5.12.0.3069
< Back
Next >
Cancel
Intel® Installation Framework

4. Setup is currently installing the driver. After installation has completed, click Next.


Intel® Graphics Media Accelerator Driver
Intel® Graphics Media Accelerator Driver
Setup Progress
intel
Please wait while the following setup operations are performed:
Copying File: C:\Program Files\Intel\Intel(R) Graphics Media Accelerator Driver\uninstall\th-TH
Copying File: C:\Program Files\Intel\Intel(R) Graphics Media Accelerator Driver\uninstall\tr-TR\
Copying File: C:\Program Files\Intel\Intel(R) Graphics Media Accelerator Driver\uninstall\tr-TR\
Copying File: C:\Program Files\Intel\Intel(R) Graphics Media Accelerator Driver\uninstall\zh-CN
Copying File: C:\Program Files\Intel\Intel(R) Graphics Media Accelerator Driver\uninstall\zh-CN
Copying File: C:\Program Files\Intel\Intel(R) Graphics Media Accelerator Driver\uninstall\zh-TW
Copying File: C:\Program Files\Intel\Intel(R) Graphics Media Accelerator Driver\uninstall\zh-TW
Copying File: C:\WINDOWS\system32\dif\xapi.dll
Deleting Registry Key: HKLM\SOFTWARE\Microsoft\Windows\CurrentVersion\Uninstall\HDMI
Deleting Registry Key: HKLM\SOFTWARE\Intel\IGDI
Click Next to continue.
Next >
Intel® Installation Framework

5. Click "Yes, I want to restart this computer now." then click Finish.

   Restarting the system will allow the new software installlation to take effect.

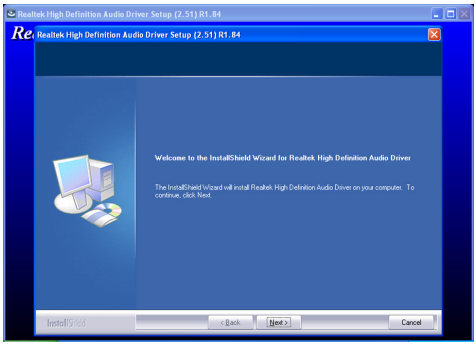

Intel® Graphics Media Accelerator Driver
Intel® Graphics Media Accelerator Driver
Setup Is Complete
intel
You must restart this computer for the changes to take effect. Would you like to restart the computer now?
Yes, I want to restart this computer now.
No, I will restart this computer later.
Click Finish, then remove any installation media from the drives.
Finish
Intel® Installation Framework

Audio Drivers

To install the driver, click "Audio Drivers" on the main menu.

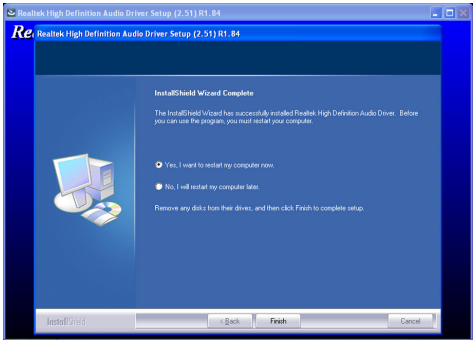
1. Setup is now ready to install the audio driver. Click Next.

2. Follow the remainder of the steps on the screen; clicking "Next" each time you finish a step.


Realtek High Definition Audio Driver Setup (2.51) R1.84
Realtek High Definition Audio Driver Setup (2.51) R1.84
Welcome to the InstallShield Wizard for Realtek High Definition Audio Driver
The InstallShield Wizard will install Realtek High Definition Audio Driver on your computer. To continue, click Next.
InstallShield
< Back
Next >
Cancel

3. Click "Yes, I want to restart my computer now" then click Finish.

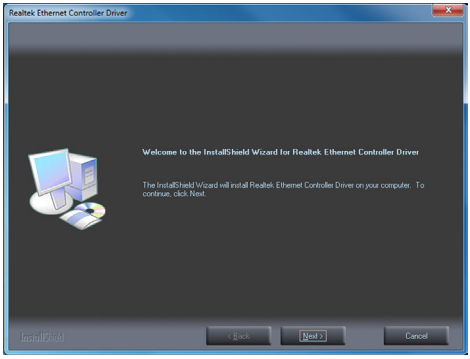
   Restarting the system will allow the new software installation to take effect.


Realtek High Definition Audio Driver Setup (2.51) R1.84
Realtek High Definition Audio Driver Setup (2.51) R1.84
InstallShield Wizard Complete
The InstallShield Wizard has successfully installed Realtek High Definition Audio Driver. Before you can use the program, you must restart your computer.
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish to complete setup.
InstallShield
< Back
Finish
Cancel

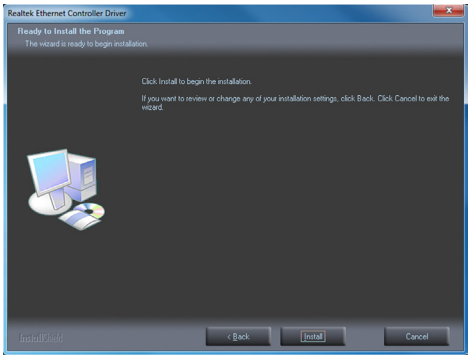
LAN Drivers

To install the driver, click "LAN Drivers" on the main menu.

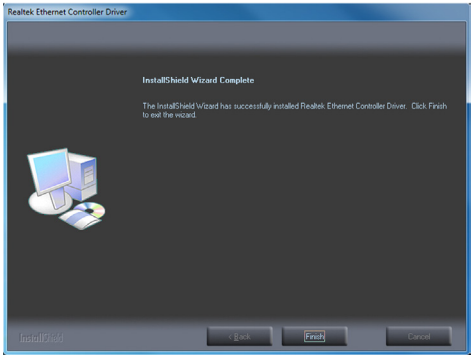
1. Setup is ready to install the driver. Click Next.


Realtek Ethernet Controller Driver
Welcome to the InstallShield Wizard for Realtek Ethernet Controller Driver
The InstallShield Wizard will install Realtek Ethernet Controller Driver on your computer. To continue, click Next.
InstallShield
< Back
Next >
Cancel

2. Click Install to begin the installation.


Realtek Ethernet Controller Driver
Ready to Install the Program
The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
InstallShield
< Back
Install
Cancel

3. After completing installation, click Finish.


Realtek Ethernet Controller Driver
InstallShield Wizard Complete
The InstallShield Wizard has successfully installed Realtek Ethernet Controller Driver. Click Finish to exit the wizard.
InstallShield
< Back
Finish
Cancel

Hardware Monitor for Windows (for Windows 7 / Vista)

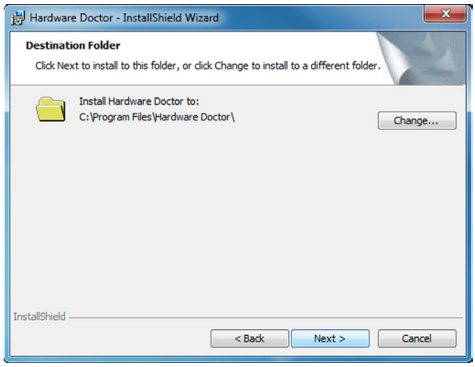
The Hardware Monitor for Windows utility is capable of monitoring the system's temperature, fan speed, voltage, etc. and allows you to manually set a range (Highest and Lowest Limit) to the items being monitored. If the settings/values are over or under the set range, a warning message will pop-up. The utility can also be configured so that a beeping alarm will sound whenever an error occurs. We recommend that you use the "Default Setting" which is the ideal setting that would keep the system in good working condition.

To install, click "Hardware Monitor for Windows" on the main menu.

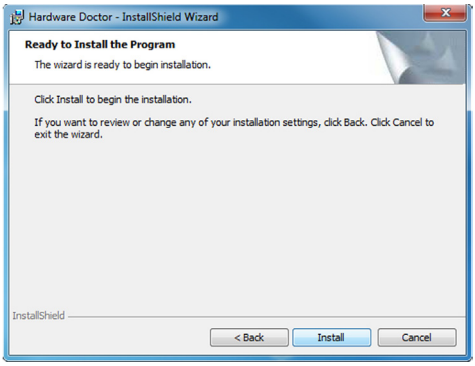
1. Setup is now ready to install the utility. Click Next.

Hardware Doctor - InstallShield Wizard
Welcome to the InstallShield Wizard for Hardware Doctor 3.7.0.46
The InstallShield(R) Wizard will install Hardware Doctor on your computer. To continue, click Next.
WARNING: This program is protected by copyright law and international treaties.
< Back
Next >
Cancel

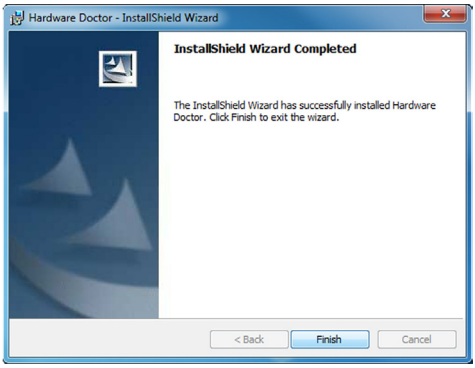
2. Click Next to install or click Change to select another folder.


Hardware Doctor - InstallShield Wizard
Destination Folder
Click Next to install to this folder, or click Change to install to a different folder.
Install Hardware Doctor to:
C:\Program Files\Hardware Doctor\
Change...
InstallShield
< Back
Next >
Cancel

3. Click Install to begin the installation.

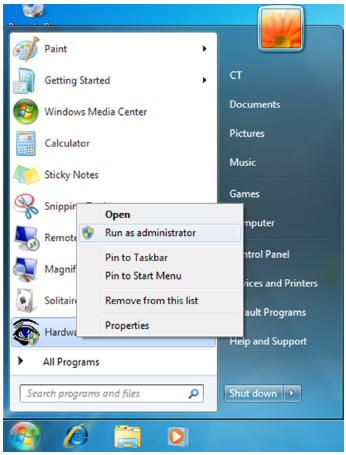

Hardware Doctor - InstallShield Wizard
Ready to Install the Program
The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
InstallShield
< Back
Install
Cancel

4. After completing installation, click Finish.

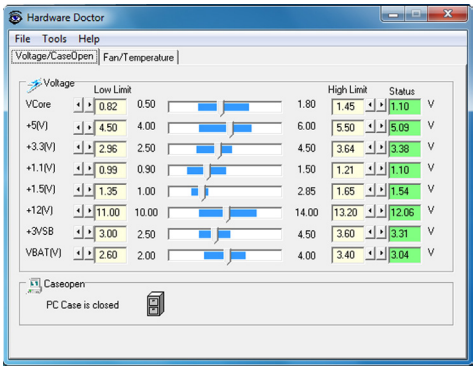

Hardware Doctor - InstallShield Wizard
InstallShield Wizard Completed
The InstallShield Wizard has successfully installed Hardware Doctor. Click Finish to exit the wizard.
< Back
Finish
Cancel

Using the Hardware Monitor for Windows Utility

1. On your desktop, click Start, select the Hardware Doctor icon and then click "Run as administrator".



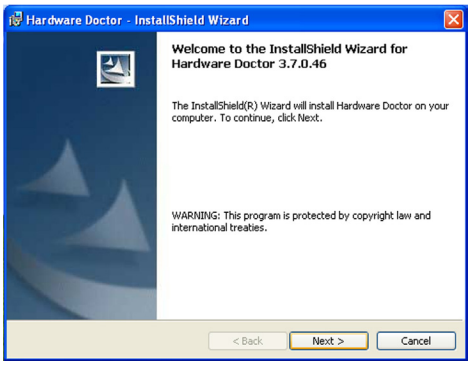
2. You can now access the utility.



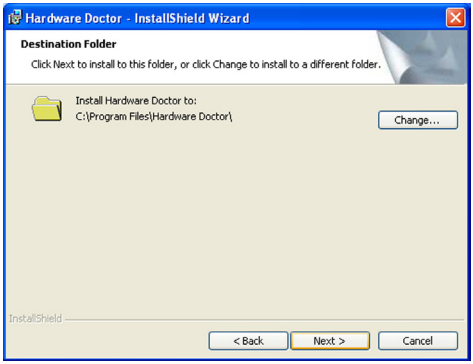
Hardware Monitor for Windows (for Windows XP)

To install, click "Hardware Monitor for Windows" on the main menu.

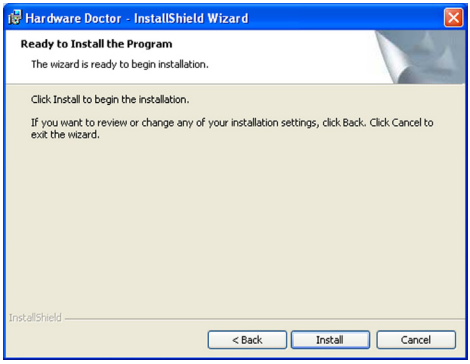
1. Setup is now ready to install the utility. Click Next.


Hardware Doctor - InstallShield Wizard
Welcome to the InstallShield Wizard for Hardware Doctor 3.7.0.46
The InstallShield(R) Wizard will install Hardware Doctor on your computer. To continue, click Next.
WARNING: This program is protected by copyright law and international treaties.
< Back
Next >
Cancel

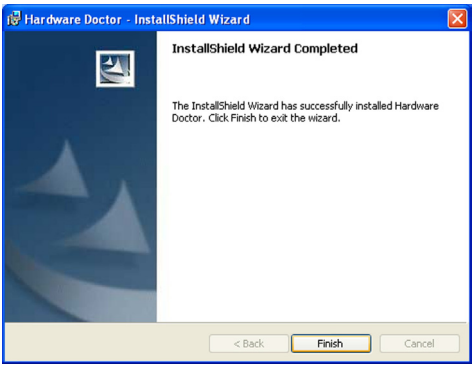
2. Click Next to install or click Change to select another folder.


Hardware Doctor - InstallShield Wizard
Destination Folder
Click Next to install to this folder, or click Change to install to a different folder.
Install Hardware Doctor to:
C:\Program Files\Hardware Doctor\
Change...
InstallShield
< Back
Next >
Cancel

3. Click Install to begin the installation.


Hardware Doctor - InstallShield Wizard
Ready to Install the Program
The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
InstallShield
< Back
Install
Cancel

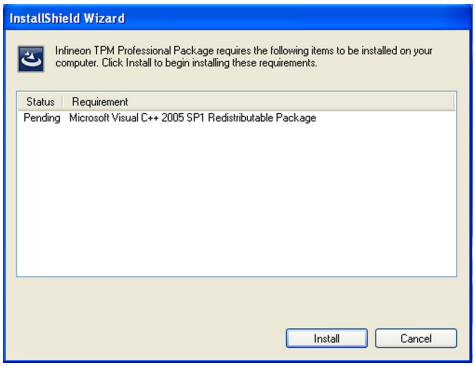
4. After completing installation, click Finish.


Hardware Doctor - InstallShield Wizard
InstallShield Wizard Completed
The InstallShield Wizard has successfully installed Hardware Doctor. Click Finish to exit the wizard.
< Back
Finish
Cancel

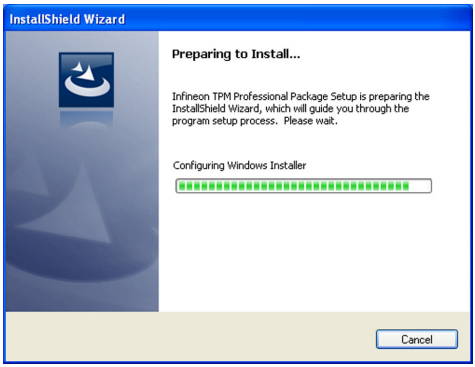
Infineon TPM Driver and Tool (optional)

To install the driver, click "Infineon TPM driver and tool (option)" on the main menu.

1. TPM requires installing the Microsoft Visual C++ package prior to installing the driver. Click Install.


InstallShield Wizard
Infineon TPM Professional Package requires the following items to be installed on your computer. Click Install to begin installing these requirements.
Status
Requirement
Pending
Microsoft Visual C++ 2005 SP1 Redistributable Package
Install
Cancel

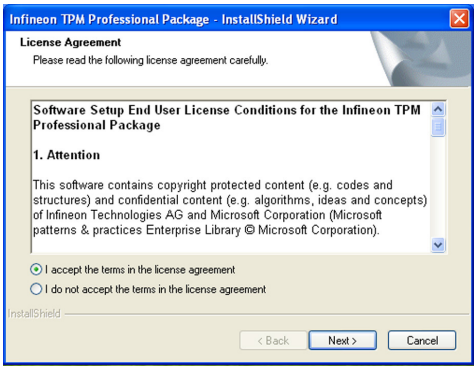
2. The setup program is preparing to install the driver.


InstallShield Wizard
Preparing to Install...
Infineon TPM Professional Package Setup is preparing the InstallShield Wizard, which will guide you through the program setup process. Please wait.
Configuring Windows Installer
Cancel

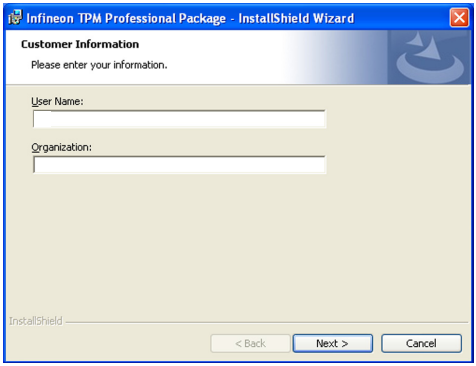
3. The setup program is ready to install the driver. Click Next.

Infineon TPM Professional Package - InstallShield Wizard
Welcome to the InstallShield Wizard for Infineon TPM Professional Package
Version 3.7
The InstallShield(R) Wizard will install Infineon TPM Professional Package on your computer. To continue, click Next.
WARNING: This program is protected by copyright law and international treaties.
< Back
Next >
Cancel

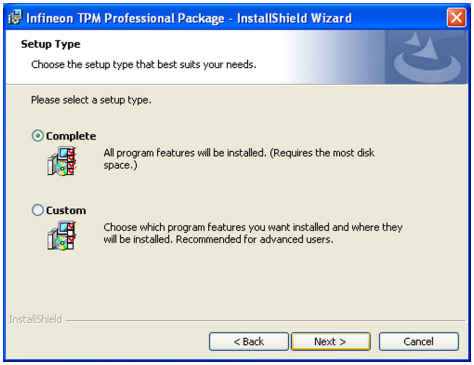
4. Click "I accept the terms in the license agreement" and then click "Next".


Infineon TPM Professional Package - InstallShield Wizard
License Agreement
Please read the following license agreement carefully.
Software Setup End User License Conditions for the Infineon TPM Professional Package
1. Attention
This software contains copyright protected content (e.g. codes and structures) and confidential content (e.g. algorithms, ideas and concepts) of Infineon Technologies AG and Microsoft Corporation (Microsoft patterns & practices Enterprise Library © Microsoft Corporation).
I accept the terms in the license agreement
I do not accept the terms in the license agreement
InstallShield
< Back
Next >
Cancel

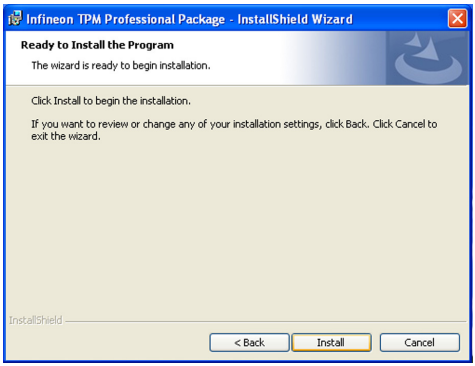
5. Enter the necessary information and then click Next.



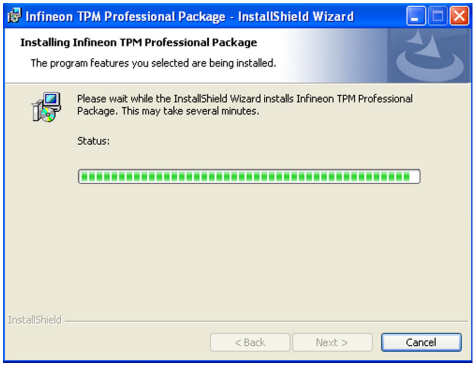
6. Select a setup type and then click Next.


Infineon TPM Professional Package - InstallShield Wizard
Setup Type
Choose the setup type that best suits your needs.
Please select a setup type.
Complete
All program features will be installed. (Requires the most disk space.)
Custom
Choose which program features you want installed and where they will be installed. Recommended for advanced users.
InstallShield
< Back
Next >
Cancel

7. Click Install.


Infineon TPM Professional Package - InstallShield Wizard
Ready to Install the Program
The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
InstallShield
< Back
Install
Cancel

8. The setup program is currently installing the driver.

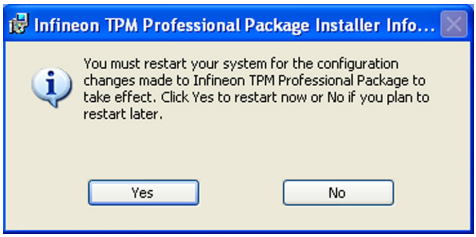

Infineon TPM Professional Package - InstallShield Wizard
Installing Infineon TPM Professional Package
The program features you selected are being installed.
Please wait while the InstallShield Wizard installs Infineon TPM Professional Package. This may take several minutes.
Status:
InstallShield
< Back
Next >
Cancel

9. Click Finish.

Infineon TPM Professional Package - InstallShield Wizard
InstallShield Wizard Completed
The InstallShield Wizard has successfully installed Infineon TPM Professional Package. Click Finish to exit the wizard.
Show the readme file
< Back
Finish
Cancel

10. Click Yes to restart the system.

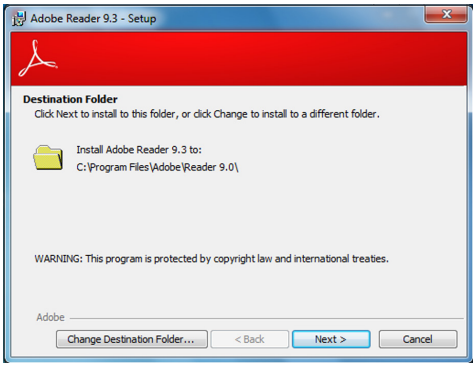
    Restarting the system will allow the new software installation to take effect.


Infineon TPM Professional Package Installer Info...
You must restart your system for the configuration changes made to Infineon TPM Professional Package to take effect. Click Yes to restart now or No if you plan to restart later.
Yes
No

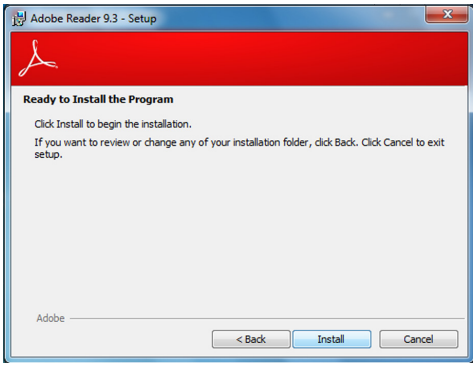
Adobe Acrobat Reader 9.3

To install the reader, click "Adobe Acrobat Reader 9.3" on the main menu.

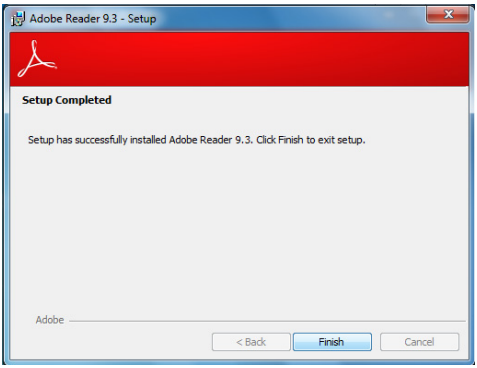
1. Click Next to install or click Change Destination Folder to select another folder.


Adobe Reader 9.3 - Setup
Destination Folder
Click Next to install to this folder, or click Change to install to a different folder.
Install Adobe Reader 9.3 to:
C:\Program Files\Adobe\Reader 9.0\
WARNING: This program is protected by copyright law and international treaties.
Adobe
Change Destination Folder...
< Back
Next >
Cancel

2. Click Install to begin installation.


Adobe Reader 9.3 - Setup
Ready to Install the Program
Click Install to begin the installation.
If you want to review or change any of your installation folder, click Back. Click Cancel to exit setup.
Adobe
< Back
Install
Cancel

3. Click Finish to exit installation.



Appendix A - Watchdog Timer

Watchdog Timer

The following parameters are references for setting the time interval of the Watchdog Timer function. The system will regularly be "cleared" according to the set time interval. If the system hangs or fails to function, it will also reset according to the time interval so that your system will continue to operate.

```
;================ PROGRAM START ================

SIO_CON_PORT    EQU     2EH
SIO_DATA        EQU     2FH

begin:
MOV     DX,SIO_CON_PORT  ;SUPERIO ENTER CONFIG
MOV     AL,87H
OUT     DX,AL
OUT     DX,AL

MOV     DX,SIO_CON_PORT
MOV     AL,2DH           ;GPIO5 AND POWER CONTROL SIGNALS
                         MULTI-FUNCTION PIN SELECTION
OUT     DX,AL            ;BIT 0 PIN77 SELECT (0= WDTO#, 1= GPIO50)

MOV     DX,SIO_DATA
IN      AL,DX
AND     AL,0FEH          ;SELECT PIN TO WATCH DOG
OUT     DX,AL

MOV     DX,SIO_CON_PORT
MOV     AL,07H           ;LOGIC DEVICE SLELCT
OUT     DX,AL

MOV     DX,SIO_DATA
MOV     AL,08H           ;SELECT DEVICE 8 (WATCH DOG)
OUT     DX,AL

MOV     DX,SIO_CON_PORT
MOV     AL,030H          ;ACTIVATE REGISTER
OUT     DX,AL

MOV     DX,SIO_DATA
OR      AL,01H           ;0= INACTIVATE, 1=ACTIVATE
OUT     DX,AL

MOV     DX,SIO_CON_PORT
MOV     AL,0F5H          ;WATCH DOG CONTROL REGISTER
OUT     DX,AL
```

```
MOV     DX,SIO_DATA         ;BIT1 DIS/EN WDTO# OUTPUT LOW PULSE TO
                            KBRST#PIN(0=DIS, 1=ENABLE)
IN      AL,DX               ;BIT3 COUNTER MODE SLEECT (0=SECOND
                            MODE, 1=MINUTE MODE)
OR      AL,02H
OUT     DX,AL

MOV     DX,SIO_CON_PORT
MOV     AL,0F6H             ;WATCH DOG COUNTER
OUT     DX,AL

MOV     DX,SIO_DATA
MOV     AL,0AH              ;SET COUNTER (EX 10 SEC)
OUT     DX,AL

MOV     DX,SIO_CON_PORT
MOV     AL,0F7H             ;WATCH DOG COUNTER
OUT     DX,AL

MOV     DX,SIO_DATA
MOV     AL,00H              ;Clear WDTO
OUT     DX,AL

mov     DX,SIO_CON_PORT     ;SUPERIO EXIT CONFIG
mov     al, 0AAh
out     dx, al

;================ RETURN DOS ===================

mov     ah,4ch   ;return dos
int     21h

end begin
```

Appendix B - System Error Message

When the BIOS encounters an error that requires the user to correct something, either a beep code will sound or a message will be displayed in a box in the middle of the screen and the message, PRESS F1 TO CONTINUE, CTRL-ALT-ESC or DEL TO ENTER SETUP, will be shown in the information box at the bottom. Enter Setup to correct the error.

Error Messages

One or more of the following messages may be displayed if the BIOS detects an error during the POST. This list indicates the error messages for all Awards BIOSes:

CMOS BATTERY HAS FAILED

The CMOS battery is no longer functional. It should be replaced.

Important
Danger of explosion if battery incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the battery manufacturer's instructions.

CMOS CHECKSUM ERROR

Checksum of CMOS is incorrect. This can indicate that CMOS has become corrupt. This error may have been caused by a weak battery. Check the battery and replace if necessary.

DISPLAY SWITCH IS SET INCORRECTLY

The display switch on the motherboard can be set to either monochrome or color. This indicates the switch is set to a different setting than indicated in Setup. Determine which setting is correct, either turn off the system and change the jumper or enter Setup and change the VIDEO selection.

FLOPPY DISK(S) fail (80)

Unable to reset floppy subsystem.

FLOPPY DISK(S) fail (40)

Floppy type mismatch.

Hard Disk(s) fail (80)

HDD reset failed.

Hard Disk(s) fail (40)

HDD controller diagnostics failed.

Hard Disk(s) fail (20)

HDD initialization error.

Hard Disk(s) fail (10)

Unable to recalibrate fixed disk.

Hard Disk(s) fail (08)

Sector Verify failed.

Keyboard is locked out - Unlock the key

The BIOS detects that the keyboard is locked. Keyboard controller is pulled low.

Keyboard error or no keyboard present

Cannot initialize the keyboard. Make sure the keyboard is attached correctly and no keys are being pressed during the boot.

Manufacturing POST loop

System will repeat POST procedure infinitely while the keyboard controller is pull low. This is also used for the M/B burn in test at the factory.

BIOS ROM checksum error - System halted

The checksum of ROM address F0000H-FFFFFH is bad.

Memory test fail

The BIOS reports memory test fail if the memory has error(s).

Appendix C - Troubleshooting

Troubleshooting Checklist

This chapter of the manual is designed to help you with problems that you may encounter with your personal computer. To efficiently troubleshoot your system, treat each problem individually. This is to ensure an accurate diagnosis of the problem in case a problem has multiple causes.

Some of the most common things to check when you encounter problems while using your system are listed below.

1. The power switch of each peripheral device is turned on.
2. All cables and power cords are tightly connected.
3. The electrical outlet to which your peripheral devices are connected is working. Test the outlet by plugging in a lamp or other electrical device.
4. The monitor is turned on.
5. The display's brightness and contrast controls are adjusted properly.
6. All add-in boards in the expansion slots are seated securely.
7. Any add-in board you have installed is designed for your system and is set up correctly.

Monitor/Display

If the display screen remains dark after the system is turned on:

1. Make sure that the monitor's power switch is on.
2. Check that one end of the monitor's power cord is properly attached to the monitor and the other end is plugged into a working AC outlet. If necessary, try another outlet.
3. Check that the video input cable is properly attached to the monitor and the system's display adapter.
4. Adjust the brightness of the display by turning the monitor's brightness control knob.

The picture seems to be constantly moving.

1. The monitor has lost its vertical sync. Adjust the monitor's vertical sync.
2. Move away any objects, such as another monitor or fan, that may be creating a magnetic field around the display.
3. Make sure your video card's output frequencies are supported by this monitor.

The screen seems to be constantly wavering.

1. If the monitor is close to another monitor, the adjacent monitor may need to be turned off. Fluorescent lights adjacent to the monitor may also cause screen wavering.

Power Supply

When the computer is turned on, nothing happens.

1. Check that one end of the AC power cord is plugged into a live outlet and the other end properly plugged into the back of the system.
2. Make sure that the voltage selection switch on the back panel is set for the correct type of voltage you are using.
3. The power cord may have a "short" or "open". Inspect the cord and install a new one if necessary.

Floppy Drive

The computer cannot access the floppy drive.

1. The floppy diskette may not be formatted. Format the diskette and try again.
2. The diskette may be write-protected. Use a diskette that is not write-protected.
3. You may be writing to the wrong drive. Check the path statement to make sure you are writing to the targeted drive.
4. There is not enough space left on the diskette. Use another diskette with adequate storage space.

Hard Drive

Hard disk failure.

1. Make sure the correct drive type for the hard disk drive has been entered in the BIOS.

2. If the system is configured with two hard drives, make sure the bootable (first) hard drive is configured as Master and the second hard drive is configured as Slave. The master hard drive must have an active/bootable partition.

Excessively long formatting period.

If your hard drive takes an excessively long period of time to format, it is likely a cable connection problem. However, if your hard drive has a large capacity, it will take a longer time to format.

Serial Port

The serial device (modem, printer) doesn't output anything or is outputting garbled characters.

1. Make sure that the serial device's power is turned on and that the device is on-line.

2. Verify that the device is plugged into the correct serial port on the rear of the computer.

3. Verify that the attached serial device works by attaching it to a serial port that is working and configured correctly. If the serial device does not work, either the cable or the serial device has a problem. If the serial device works, the problem may be due to the onboard I/O or the address setting.

4. Make sure the COM settings and I/O address are configured correctly.

Keyboard

Nothing happens when a key on the keyboard was pressed.

1. Make sure the keyboard is properly connected.

2. Make sure there are no objects resting on the keyboard and that no keys are pressed during the booting process.

System Board

1. Make sure the add-in card is seated securely in the expansion slot. If the add-in card is loose, power off the system, re-install the card and power up the system.

2. Check the jumper settings to ensure that the jumpers are properly set.

3. Verify that all memory modules are seated securely into the memory sockets.

4. Make sure the memory modules are in the correct locations.

5. If the board fails to function, place the board on a flat surface and seat all socketed components. Gently press each component into the socket.

6. If you made changes to the BIOS settings, re-enter setup and load the BIOS defaults.